THE IRON TRADE REVIEW

Volume XLIII CLEVELAND, AUGUST 6, 1908 Number 6

HEAVY BUYING

BY CAST IRON PIPE INTERESTS ENLIVENS PIG IRON.

Blast Furnace Production Increases—Good Showing in Iron Ore Shipments—Limited Railroad Buying.

Heavy buying of pig iron by cast iron pipe interests has brought new life to the pig iron market. A leading pipe interest has, within a few days, purchased 30,000 tons of southern iron and an order for 15,000 tons placed recently by a New York state pipe concern is announced. The sale of southern iron places several companies, which have been making low prices, out of the market for the third quarter. Although it may still be possible to buy on a basis of $11.50 Birmingham for No. 2 foundry, several important interests have advanced their quotations to from $12.25 to $12.50. In spite of the improvement in conditions in the south, the situation is not such as to justify further advances, which, if made, would probably check buying. The Standard Sanitary & Mfg. Co. has purchased 4,000 tons for its Louisville plant, and is in the market for 4,000 additional tons. The usual sale basis for southern product has been $11.50 Birmingham. In the east, there is moderate activity in foundry iron. The average price of Bessemer for July was $15.83 valley, the lowest figure since October, 1905, and the iron is now selling at $15.50, valley, with a limited demand. Basic is also very quiet.

Iron Ore Shipments

The movement of ore from the Lake Superior region for July amounted to 4,364,283 tons, making the total for the season 7,235,281 tons, a decrease of 10,299,460 tons compared with the same period in 1907. The movement for July was better than was expected and it now seems probable that the total for the year will reach 25,000,000 tons. M. A. Hanna & Co. have sold 1,000,000 tons of ore on a five-year contract, but other sales are for small lots.

Pig Iron Production

The production of pig iron for July amounted to 1,225,363 tons, compared with 1,105,300 tons in June, and 11 more blast furnaces were in operation on the last day of July than on the last day of June. The American Steel & Wire Co. blew in another furnace this week, making four in operation.

Finished Materials

In finished materials, the strength of the situation lies largely in the very satisfactory specifications that are being received. Owing to the completion of the season's buying by canning interests, there is less activity in tin plate and more mills of the leading interests were placed on the idle list this week. There is gradual improvement in sheets, but prices are not being maintained by all interests. Bookings of structural material are coming in slowly.

Railroad Buying

Buying by the railroads is still disappointing and some companies, which cater almost exclusively to the railroad trade, state that their business is very poor. We note, however, an order for 14,500 tons of rails placed by the B. & O. R. R., 2,000 kegs of spikes by the Santa Fe, and 500 tons of tie plates by another company. An industrial railroad is in the market for 300 cars. The light rail demand is fairly active

WILL BUILD TWO BLAST FURNACES.

Corrigan, McKinney & Co., Cleveland, have practically completed negotiations for the purchase of a 40-acre tract on the west bank of the Cuyahoga river near the site of the Cleveland Furnace Co., in that city, and will erect two modern blast furnaces. Plans have not yet been prepared in detail, but it is expected that the building of one of the stacks will begin at a not far distant date. The site is bounded by Clark avenue on the south, by the Wheeling & Lake Erie and the Newburg & South Shore railroads on the west and the B. & O. on the north, and the furnaces will have admirable shipping facilities. This firm was formerly an active factor in the foundry pig iron trade in Cleveland, having operated the furnace of the Upson Nut Co. under lease for a number of years. Its other interests include the Scottdale furnace, Scottdale, Pa., the Josephine furnace, Josephine, Pa., the Genessee furnace at Charlotte, N. Y., and extensive iron ore and vessel properties.

Will Build Plate Mill.—The Otis Steel Co. will begin, at an early date, the erection of a 152-inch plate mill at its plant in Cleveland, on the site now occupied by the 126-inch mill. There is only one other 152-inch mill in the country, that of the Worth Bros. Co. at Coatesville, Pa. The increasing demand for plates of wide width rendered necessary the construction of the new mill by the Otis company, which is one of the oldest and best known steel concerns in the central west.

The Sweet Steel Co., Williamsport, Pa., is rebuilding its machine shop 165 x 80 feet, recently destroyed by fire. The equipment was not materially damaged and the greater part will be reinstalled.

One of the largest foundries of the E. J. Jones Co. of Buffalo, was severely damaged by fire Aug. 1, the loss reaching about $150,000. The principal loss was machinery. The company manufactures ball bearings.

THE WEEK IN IRON CENTERS

PITTSBURG.

Heavy Buying of Pig Iron and Southern Prices Are Tending Upward.

Office of THE IRON TRADE REVIEW,
510 Park Bldg., Aug. 4.

The month of July just ended has played quite a conspicuous part in the process toward regaining former business conditions, through which the iron and steel trade is now slowly passing. More clearly than any of the months that had preceded it, July was marked with the evidence of a cheerful spirit returning to general lines of commercial activity and the results of that period as they now stand forth are lending encouragement to manufacturers as to the future.

The fact that the past month commended itself to attention by the large tonnage of iron and steel products placed upon mill books through new contracts and the renewals of those expired, was not, in itself, exactly unexpected. Representing the beginning of the second half of the year, July has become the proverbial time for the covering of annual and semi-annual requirements of consumers and, with the added impetus of price concessions made a short time before, this year has proved no exception in this respect.

But the hopeful tone that is spreading from the month is not so much in contracts placed as in specifications filed against contracts, the true index to consumptive needs, and that upon which mill operations are based. The specifications received in the period just passed aggregated the largest volume of the year for most steel companies. This has been particularly true in steel bars and in a less degree in other lines, including plates designed for pipe manufacture. As a result, the mills producing the favored lines, have increased their operations; others, less fortunate as to their products, have barely sustained the record of the past. The net result is more hopeful but scarcely one calculated to insure prosperity within any definite number of days or months. August has started well, but is not expected to exceed, if it can maintain, the gait of its predecessor.

The enforced reluctance of the railroads to buy iron and steel products is only occasionally being overcome. The buying of small tonnages of standard rails is being made now and then, the Baltimore & Ohio railroad having closed for an order during the week. More active interest, however, has been inspired in the market the past week in the announcement that the Harriman railroad interests are now in the market for 7,000 steel cars of various designs. The manufacture of these cars would divert from 60,000 to 70,000 tons of plates to the mills.

A somewhat disturbing factor that is again demanding attention in the market is the increasing instability of prices in northern pig iron. Bessemer iron is now quoted at Pittsburg at the lowest price in three years. Foundry iron is also less firm.

Pig Iron.—The rather spectacular decline in Bessemer iron, which is now squarely upon a $15.50 valley basis, has featured the week. Deals have been put through at even lower than this figure, notably a sale of 1,000 tons this week to a consumer in this district at $15.40 valley, but there were special considerations involved which take this from the open-market transactions. All the low Bessemer prices have been brought forth on inquiries which aggregate scarcely 2,000 tons.

The Bessemer average for July was $15.83 valley, or $16.73 Pittsburg, based upon few sales. This is the lowest figure for this grade of iron since October, 1905, when the market was $16.50 Pittsburg. The drop in Bessemer as shown by the average monthly prices has been gradual throughout the year. These have been as follows: $16 valley or $16.90, Pittsburg in June; $16.50 valley or $16.92, Pittsburg in May; $16.59 or $17.49, Pittsburg in April; $16.96 valley or $17.86 in March; $17 valley or $17.90 Pittsburg in February; and $18.10 valley or $19 Pittsburg in January.

In foundry iron about 5,000 tons were taken by the Standard Sanitary & Mfg. Co., including 2,000 tons northern and the remainder southern and Virginia iron. The specifications on the northern iron required 2.50 or higher per cent in silicon and the price paid was upon the basis of about $14.50 valley for No. 2. The southern No. 2 brought $11.50 Birmingham. The iron is for delivery over the next several months. The leading cast iron pipe maker has also been extensively buying iron within the past 10 days and has taken a total of about 30,000 tons, largely southern iron, for its requirements over an extended period. A number of Pittsburg foundries are sounding the market on foundry iron at present, but are holding for prices below $14.50 valley so far without success. Basic is very dull, but there are reports that $15 valley may be shaded. The only change in valley furnace operations the past week has been the blowing out of Shenango No. 4 which has been on basic. Nos. 1 and 3 continue active on basic and Bessemer.

The southern iron market appears about to undergo a sharp advance, a result which has been contributed strongly to by the prolonged miners' strike in that region. One of the largest makers in the south withdrew all previous schedules Tuesday, and reported it had no additional iron for sale at the present market. It announced it will now entertain no business under the basis of $12.50 Birmingham. Other makers are expected to follow this lead at once. On third quarter shipment on northern iron, we quote as follows:

Bessemer, valley	$15.50 to 15.75
Bessemer, Pittsburg	16.40 to 16.65
No. 1 foundry, Pittsburg	15.90 to 16.15
No. 2 foundry, Pittsburg	15.40 to 15.65
Gray forge, Pittsburg	14.90 to 15.15
Basic, valley	15.00 to 15.50
Basic, Pittsburg	15.90 to 16.40

Ferro-Manganese. — Quietness generally prevails in ferro-alloys. The business going is of the carload and small tonnage order. There is a better demand for the lower grades of ferro-silicon. For delivery this year, the ferro-manganese market is from $44 to $45 Baltimore or $45.95 to $46.95 Pittsburg. Prompt material is lower.

Imported 50 per cent ferro-silicon is quoted $70 Pittsburg on forward deliveries; domestic 12 per cent, $29; 11 per cent, $28; 10 per cent, $27. The lower grades of imported ferro-silicon are upon about the same basis. These quotations are applicable to Pittsburg territory.

Plates.—The movement in plates has not changed. There is now under consideration in the country, a large number of water, oil and gas line projects and other promised undertakings, which when released, will require a vast tonnage of plates. The prospects for such a later development soon are not especially promising, but are improving as business conditions are becoming more settled. The T. A. Gillispie Co., Pittsburg, was the lowest bidder on the riveted pipe contract for the water works extensions of the city of Brooklyn, but the contract for the 26,000 tons of plates required has not been placed. Shading of prices by independent mills, continues. We quote:

Tank plates, ¼-inch thick, 6¼ to 100 inches, 1.60c f. o. b. mill Pittsburg. Extras are as follows per 100 pounds: Boiler and flange steel plates, 0.10c;

A. B. M. A. and ordinary firebox steel plates, 0.20c; still bottom steel, 0.30c; marine steel, 0.40c; locomotive firebox steel, 0.50c; all sketches, excepting straight taper plates varying not more than 4 inches in width at ends, narrowest end not being less than 30 inches, 0.10c; circles, 0.20c. Plates in width over 100 inches up to 110 inches, 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches up to 130 inches, 0.50c; over 130 inches, 1c. Gages under ¼-inch to and including 3/16-inch plate on thin edges, 0.10c; under 3/16 to and including No. 8, 0.15c; under No. 8 and including No. 9, 0.25c. Five cents extra for less than carloads. Terms, net cash in 30 days.

Sheets.—The gradual improvement in sheets is continuing weekly. Specifications are coming more freely to the mills and there is an increase in new business booked. The electrical companies with a few notable exceptions are enjoying prosperous conditions and are drawing heavily upon sheet contracts. The American Sheet & Tin Plate Co. is increasing operations, having put on this week the Scottdale works of nine mills and is now running to about 60 per cent of capacity. Official prices are not being maintained by some makers. We quote:

Black steel sheets, cold rolled, No. 28 gage, $2.50 per 100 pounds, and galvanized sheets, No. 28 gage, $3.55 per 100 pounds, plus the regular extras.

Blue annealed: Nos. 11-12, 1.85c; Nos. 13-14, 1.90c; Nos. 15-16, 2c. Corrugated roofing, $1.75 per square for No. 28 painted, 2½-inch corrugation; and $3.10 per square on galvanized roofing, 2½-inch corrugation, No. 28.

Tin Plate.—The practical completion of the season's burying by the canning interests has been followed by a slowing down of tin plate activity and more hot mills of the leading interest were placed on the idle list this week. The finishing mills are running close to normal upon accumulated specifications and shipments in August promise to be quite heavy. New business this month is expected to be light, however. Some revival of buying activity is anticipated in September when the size of the fruit and vegetable crop will be definitely known, but in the main, the season's activity may be regarded as ended. We quote:

Coke tin plate, 100-pound basis, 14 x 20, $3.70 f. o. b. mill Pittsburg district. Terms, 30 days, less 2 per cent for cash in 10 days.

Rails and Track Material.—Negotiations are now under way with some of the railroads for tonnages of standard sections for this season's requirements and definite announcements are expected to be forthcoming shortly. The light rail market continues active and new business is coming to the mills in steady tonnage. The Edgar Thomson rail mills continue to run at about 35 per cent capacity. Rerollers are now asking $23 and $24 for light rails owing to the increased price of scrap. On present specifications on Bessemer rails we quote as follows:

Fifty-pound and heavier, 500-ton lots and over, $28; carloads and less than 500 tons, $30; less than carload lots, $32; 8-pound, $36; 12-pound, $32; 16-pound, $30; 20-pound, $29; 25 to 45-pound, $28; angle splice bars for standard sections, $1.65; standard spikes, $1.70 to $1.80 Pittsburg; hand spikes, $1.80 to $1.90 Pittsburg.

Steel.—New business in billets is light, but specifications against contracts are increasing. The low prices of Bessemer iron now prevailing are working to the benefit of holders of sliding scale billet contracts and the latter at present are enjoying an advantage with respect to official quotations. Sheet and tin bars are less active than they have been, especially the latter, but are still moving in large tonnage.

Bessemer and open-hearth billets, base sizes, are quoted at $25 Pittsburg, and forging billets at $27 Pittsburg, subject to the division of the freight charge over $1 and not exceeding $3, and sheet and tin bars at $27.50 Pittsburg, valley and Wheeling territory, and $27 Pittsburg for delivery to other points.

Hoops, Bands and Cotton Ties.—At present the market in hoops and bands is quiet and the activity is almost entirely in specifications against contracts by reason of the fact that these products are now out of their season. We quote:

Cotton ties, 85c per bundle Pittsburg, plus the freight on lots of 3,000 bundles or more, and 88c per bundle Pittsburg for less than 3,000 bundle lots.

Hoops in carload lots, 1.80c; in less than carload lots, 1.90c; bands, 1.40c, base half extras as per standard steel.

Merchant Bars.—The steel bar situation remains quite satisfactory to producers. Since the recent heavy buying movement, specifications have gradually increased until they are now aggregating a heavy volume. New business is also better. The month of July materially improved the steel bar market and in respect both to contracts placed and specifications filed, it was the best month of the year. The Republic Iron & Steel Co. this week is operating its Bessemer steel works at Youngstown for the third consecutive week, which is the best record as to steel production the company has made since November. The prospects for the works continuing going next week are promising. Bar iron prices are quite irregular, though some improvement in this respect is reported from the east. The market is dull. Steel specialties are not active. Shafting is moderately firm. We quote:

Common iron bars, 1.40c Pittsburg in carload lots and over; 1.45c in less than carloads; 1.32c to 1.35c base Pittsburg plus freight to point of shipment on western deliveries; Bessemer steel bars, 1.40c; plow and cultivator, 1.40c; channels, angles, zees, tees, under 3 inches, 1.50c, all f. o. b. Pittsburg. The following differentials are maintained on steel: Less than 2,000 pounds, 0.10c advance; less than 1,000 pounds of a size, 0.30c advance. Cold rolled and ground shafting 56 per cent in carloads, and 52 per cent less than carloads, delivered in base territory; open-hearth spring steel, 2.25c to 2.50c; sleigh shoe flats, 1.60c to 1.65c; smooth finished machinery steel, 1.90c to 2c; toe calk, 2.10c to 2.15c. Planished and machine straightened tire steel is 1.80c base. Iron finished tire under 1½ by 1½ inches, 1.75c; iron finished tire, 1½ by 1½ inches and over, 1.60c. All tire subject to ½ extra on the steel card.

On cold rolled strip steel, width 1½ inches and wider and 0.100 inch and thicker, we quote base prices per 100 pounds, $3.35 on hard and $3.60 on soft.

Structural Material.—A pleasing development of the week for some structural mills has been the receipt of stock orders for plain material from jobbers and fabricators. These are the first stock orders taken for a number of months and as a consequence, favorable significance has been attached to them. Beyond a moderate increase in inquiry, the market has not changed. Competition among fabricators continues strong and rock-bottom prices are being quoted. Small specifications are coming quite numerously to the mills. The East Liberty Y. W. C. A. building in this city will require a small tonnage. We quote:

Beams and channels, 15-inch and under, 1.60c; over 15 inches, 1.70c; zees, 1.60; tees, 1.65c; angles from 3 to 6 inches, 1.70c; universal and sheared plates, 6¼ inches and wider, 1.60c base.

Merchant Pipe.—Oil and gas companies continue to direct a steady demand for butt-weld pipe to the mills for line purposes and both the principal maker and leading independents in this district

are operating close to full capacity in these departments. Fair-sized orders are being regularly placed, but the market is not so full of rumors of large projects about to be closed, as it has been. Merchant pipe is also looking better. A local coal and coke company this week bought 1,400 tons of 8, 10 and 12-inch cast iron pipe for a water line in the coke regions. We quote the following official base discount with an additional one point and five off to jobbers:

	—Steel—		—Iron—	
	Black.	Galv.	Black.	Galv.
¼ to 6 inches....	75	65	73	63

Boiler Tubes.—The boiler tube market shows more life and the demand is growing. The railroads are increasing their purchases, but these continue to represent absolute needs. We quote the following official base discount to the general trade:

BOILER TUBES.

	Iron.	Steel.
2¼ to 5 inch.....	52	65

Wire Products.—The market in wire products is perceptibly brightening though the business now being booked is not of large proportions. The outlook for the fall season is improving and producers are preparing for a busy season as the country has little held-over tonnage on hand. Prices are exciting only occasional comments from consumers. We quote:

Wire nails, jobbers' carload lots, $1.95; retailers' carload lots, $2.00; painted barb wire, jobbers' carload lots, $2.10; retailers' carload lots, $2.15 with 30c for galvanizing; plain wire to jobbers in carloads, 1.80c; and to retailers in carloads, 1.85c.

Wire Rods.—Activity in rods is mainly by specifications and we quote $33.00 Pittsburg on Bessemer, and $34.00 Pittsburg on open-hearth rods.

Coke.—The coke market has quieted down considerably with respect to contract material, but there is more evidence of life as to fuel for immediate shipment. The latter market continues to show instability in prices owing to surplus of stock and other causes, but this condition is not so acute as it has been. Coke shipments are going forward in a fair volume and with some companies, July was a notable month in this regard. Occasional instances of operations in the Connellsville regions being affected by a scarcity of water are reported, but the situation generally has been relieved. We quote standard Connellsville foundry coke at from $2.00 to $2.25 ovens and standard furnace coke at from $1.65 to $1.85 ovens. The *Courier's* figures for the week ending July 25 show 18,010 active ovens, 19,462 inactive ovens and an output of 188,799 tons compared with 17,903 active ovens, 19,556 inactive ovens and a production of 185,093 tons the previous week.

Old Material.—After several weeks of vigorous activity, during which a considerable tonnage was transferred, largely among dealers, the old material market exhibits less soundness and has reacted to quietness. Though some of the main consumers in this district have taken advantage of bargains when they were presented, there has been no consistent support given the market with the exception of one interest which has been loading up steadily upon heavy melting stock. Iron mill scrap obviously is not in strong demand. Prices have not shown much tendency to taper off, but in many respects are nominal. We quote gross tons delivered in the Pittsburg territory as follows:

Heavy melting scrap, $14.50 to $15.00; rerolling rails, $15.50 to $16.00; bundled sheet scrap, $11.50 to $12.00; iron axles, $20.00 to 20.50; old iron rails, $16.00 to $17.00. No. 1 wrought scrap, $14.00 to $14.50; old car wheels, $14.00 to $14.50; low phosphorus, $18.00 to $18.50; machine shop turnings, $8.75 to $9.25; cast borings, $8.50 to $9.00; No. 1 cast scrap, $14.00 to $14.50.

CHICAGO.

Buying by Leading Pipe Interests Strengthens Situation—Pig Iron.

Office of THE IRON TRADE REVIEW,
1328 Monadnock Block, Aug. 4.

A more or less apathetic condition prevails locally. Whether this may be associated with the vacation period or whether it is simply the part of wisdom displayed by shrewd buyers and sellers, is indeterminate, but the effect on trading is the same. Even prices appear tired. There is no aggressiveness in the transactions recorded. In a very general way, foundrymen, fabricators of structural steel, and makers of finished steel and manufactured products estimate and report that business is increasing, both in volume and to the extent to which it is spread out. Such actual transactions as are reported—and they are partially representative at least—indicate nothing radical in the improvement, most of which may be accepted as improvement in the volume of small business only. Pig iron prices in the south were stiffened somewhat by large sale of iron to pipe makers last week, but $11.50 Birmingham can still be done. In the north, buying can be forced only by sacrificing the price. Steel bars offer the brightest spot in the market, building structurals are reported as being in greater demand, railroad materials are being bought for necessary repairs only, and light rails for logging and mining work have been quite active for a fortnight past. The moderate business being done in sheets holds up pretty well, which is also true of merchant pipe. The wire trade is in good condition, with the needs of an encouraging part of the manufacturers of wire products and the implement makers taken care of by contracts against which specifications are coming in freely. The scrap market is very firm, with continued upward tendencies.

Pig Iron.—It is understood that the leading pipe interest purchased 30,000 tons of southern iron, but not through Chicago agencies. The largest sale accorded in the local market during the week was one of 15,000 tons of northern iron to the L. Wolf Mfg. Co. Otherwise the tonnages were small, generally ranging from 200 to 500 tons, but the total was a very fair amount. The particularly encouraging feature of present conditions is that the iron now being sold is apparently intended for immediate melting and is scattered among a very wide variety of consumers. The distribution and tonnage of the pig iron melt are undoubtedly improving, although the extent to which this is true still makes the quantity of iron purchased in May and June look pretty big to the melter. Comparatively little difficulty is being experienced with regard to the acceptance of iron on contracts made this year, but a substantial tonnage of high-priced contract iron is still undelivered and it is moving very slowly in carload lots here and there. Standard grades of southern iron are being offered at $11.50 Birmingham, and a sale of 500 tons of No. 2 was made at that price. The two interests asking $12.50 Birmingham are still holding at that price and another of the leading concerns is selling nothing below $12. A considerable tonnage of southern was disposed of at $12 during the week, but this was apparently the top of the market. The sale of a large tonnage of southern iron to the pipe interest at the end of last week has added some strength to southern iron and one additional interest reports its price as $12.50 Birmingham for No. 2. In the local market $17 continues to be the price for northern iron, with a rather lifeless trading. Buying is more or less a matter of getting as low a price as possible on as little iron as possible. Iron brought from Ohio furnace in the Hanging Rock district was obtained by a western interest as low as $14.20 valley basis. This represents the bottom of a decline, through the

last 45 days as shown by actual sales of Ohio iron, of 50 cents. Furnaces in this territory are not shading $17, as a rule. We quote:

Lake Superior Charcoal	$19.50 to 20.00
Northern Foundry No. 1	17.50 to 18.00
Northern Foundry No. 2	17.00 to 17.50
Northern Foundry No. 3	16.50 to 17.00
Southern Foundry No. 1	16.35 to 16.85
Southern Foundry No. 2	15.85 to 16.35
Southern Foundry No. 3	15.35 to 15.85
Southern Foundry No. 4	14.85 to 15.35
Southern No. 1 Soft	16.35 to 16.85
Southern No. 2 Soft	15.85 to 16.35
Southern Gray Forge	14.60 to 15.10
Southern Mottled	14.35 to 14.60
Southern Silveries, 4 per cent Silicon	17.85 to 18.35
Southern Silveries, 5 per cent Silicon	18.35 to 18.85
Southern Silveries, 6 per cent Silicon	19.35 to 19.85
Jackson Co. Silveries, 6 per cent	19.90 to 20.40
Jackson Co. Silveries, 8 per cent	20.90 to 21.40
Jackson Co. Silveries, 10 per cent	21.90 to 22.40
Malleable Bessemer	17.25 to 17.75
Standard Bessemer	18.25 to 18.75
Alabama Basic	16.35 to 16.85

Billets and Rods.—No items of interest are reported in connection with either billets or rods. The three principal users of merchant billets in this market have not bought in noteworthy quantity for months. We quote rolling billets $26.50, and forging billets $28.50, base Chicago. We quote f. o. b. Pittsburg, Bessemer wire rods, $33; open-hearth, $34; and chain rods, $33.

Merchant Bars.—The activity in specifications against the contracts on well filled order books continues to promote the satisfied feeling among steel bar makers. With the exception of a few small transactions still to be closed, the contracting in this line seems to be about at an end, but current buying of small lots for prompt shipment is sustained in very fair volume. The demand for bar iron remains very quiet in contrast. The local mill situation is somewhat improved for the present in the matter of active capacity and the independent mills at East Chicago, Moline and East St. Louis are all running in part at least. The new continuous mill of the Inland Steel Co. has not yet started running regularly owing to the installation of the new blooming mill. We quote as follows:

Bar iron, 1.50c to 1.53c; soft steel bars and bands, 1.58c, half extras; soft steel angles, less than 3 x 3, 1.68c; hoops, 1.98c base, full extras; planished or smooth finished tire steel, 1.78c; iron finish, up to 1½ x ½-inch, 1.73c base tire card; iron finish, 1½ x ½-inch and larger, 1.58c base steel card; channel for solid rubber tire, ¾ to 1-inch, 2.08c, and 1⅛-inch and larger, 1.98c; smooth finished machinery steel, 1.83c; flat sleigh shoe, 1.63c; concave and convex sleigh shoe, 1.83c; cutter shoe, 2.05c; toe calk steel, 2.13c; railway spring, 1.93c, base steel card; vehicle spring steel, 1.98c base, vehicle card; crucible tool steel, 7c to 9c, with higher prices asked on special grades. Quotations on shafting are 56 per cent off the list for carload lots, and 52 per cent off for less than carload lots, carload freight allowed to points in base territory. On iron and steel bars from local stocks, we quote as follows: Bar iron, 1.90c to 2c, full extras; soft steel bars, 1.80c per 100 pounds base, plus half extras; soft steel hoops, 2.30c, full extras.

Plates.—Although the sheared plate mill at the South Works of the Illinois Steel Co. will be started up this week, the orders on which it will run include none that is of mentionable importance. Buying of plates is incidental and for prompt placing in service. It is understood that one of the sheared plate mills at the South Works will be replaced by a larger mill. We continue to quote:

Plates, ¼-inch and heavier, 6¼ to 100 inches wide, either universal or sheared, 1.78c Chicago. For extras see Pittsburg report. Jobbers' prices for shipment from local stocks are as follows: Tank steel, ¼-inch and heavier, up to 72 inches wide, 2c to 2.10c; from 72 to 96 inches wide, 2.10c to 2.20c; 3/16-inch up to and including 60 inches wide, 2.10c to 2.15c; 72 inches wide, 2.35c to 2.45c; No. 8, up to 60 inches wide, 2.10c to 2.15c; flange and head quality, 25c extra.

Sheets.—The trading in sheets, while limited in volume, is not losing ground. Conditions have changed in the last month scarcely at all. Prices bear evidence of shading here and there by some of the mills, but store quotations are more regular. We quote store prices as follows. For mill prices see Pittsburg report.

No. 10, 2.15c to 2.25c; No. 12, 2.20c to 2.30c; No. 14, 2.25c to 2.35c; No. 16, 2.35c to 2.45c; Nos. 18-20, 2.60c to 2.65c; Nos. 22-24, 2.65c to 2.70c; No. 26, 2.70c to 2.75c; No. 27, 2.75c to 2.80c; No. 28, 2.85c to 2.95c; No. 30, 3.25c. Galvanized sheets, No. 10 to 16, 3.05c to 3.10c; Nos. 18 to 20, 3.15c to 3.25c; Nos. 22 to 24, 3.30c to 3.35c; No. 26, 3.50c to 3.55c; No. 27, 3.70c to 3.75c; No. 28, 3.90c to 4.00c; No. 30, 4.40c to 4.50c.

Structural Steel.—A marked improvement is reported in the general run of structural steel business. This has reference to building structures of the smaller variety where the capital is furnished by a very general class of investors. Mills also report an increase in specifications against structural steel contracts. This tendency to increased operations is not borne out, especially by the tonnage contracts reported placed during the week. As compared with 1,400 tons of miscellaneous steel contracted for with the American Bridge Co. a week ago, this interest took only something over 300 tons last week. The Chico Landing bridge was taken by the Toledo-Massillon Bridge Co., the steel amounting to about 250 tons. The Minneapolis Steel & Machinery Co. will fabricate the 238 tons of steel for the Oregon Short Line railway at Salt Lake City. The Northwestern Elevated railroad will award the contract for 1,400 tons this week for its new stub terminal. Other contracts mentioned last week at Detroit and Chicago are still unsettled. Evidence points to the early asking for bids on a part of the structural work for the new Chicago & Northwestern railroad terminal. This structure will involve before completion in the neighborhood of 40,000 tons of steel. Official prices remain unchanged and we quote:

Beams and channels, 3 to 15 inches, inclusive, 1.78c to 1.81c delivered Chicago. For extras see Pittsburg report. Quotations from store are as follows for carload lots and over:

All angles, 3 inches and larger, including 6 inches, $1.95 per 100 pounds; angles over 6 inches, $2.05 per 100 pounds, base; beams, 3 to 15 inches, inclusive, $1.95 per 100 pounds, base; channels, 3 inches and larger, $1.95 per 100 pounds, base. Less than carload lots are $1 a ton higher than foregoing prices.

Rails and Track Supplies.—The demand for light rail sections, which was reported as very good a week ago, was increasingly so during the week under review. This bespeaks increases of activity in mining and lumbering enterprises and, taken with other evidences, gives reason for anticipating a permanent enlarging of operations. Specifications for spikes and bolts are also coming in in a manner productive of encouragement. The Santa Fe railroad sent in an order for 2,000 kegs of spikes, the first shipment of spikes this road has asked for this year. The Pennsylvania Steel Co. was awarded a contract for 500 tons of tie plates. The local street railways are in the market for about 800 tons of special work, the contract involving about $75,000. No changes in prices are reported and we quote as follows:

Standard rails, $28 f. o. b. mill, full freight to destination; light rails, 25-pound to 45-pound, $28; 20-pound, $29; 16-pound, $30; 12-pound, $31. Track supplies, f. o. b. Joliet, angle

bars, 1.50c to 1.60c; spikes, 1.80c to 1.90c; track bolts, with square nuts, 2.20c to 2.25c; with hexagon nuts, 2.35c to 2.40c. Small railroad and square boat spikes, 1.90c base, f. o. b. Chicago.

Cast Iron Pipe.—The past week was productive of very little business for makers of cast iron pipe. There was received some routine business both in water and gas pipe, but this also was in less than usual volume. The contract for the Milwaukee county pipe requirements of 1,000 tons was placed with a Milwaukee jobbing house. To whom the order for making the pipe will go has not been announced. Prices are unchanged and we quote: Four to 6-inch pipe, $27; 6 to 16-inch, $26; larger sizes, $25; gas pipe, $1 a ton higher.

Merchant Pipe and Boiler Tubes.—The mills of the principal producer are operating up to about 60 per cent of their capacity. Orders received and business on the books are made up for the most part of the ordinary requirements of the trade proportionately reduced in volume.

We quote mill discounts, Chicago delivery, carload lots, as below. On steel pipe jobbers are allowed a concession of one point and 5 per cent additional from the schedule in force.

	—Steel— Black.	Galv.
¼ to 6 inches, inclusive.....	73.2	63.2
7 to 12 inches, inclusive.....	70.2	55.2
BOILER TUBES. Steel.	Iron.	Seamless.
2¼ to 5 in., inclusive.... 63.2	50.2	50.2

Mill quotations on iron pipe are three points higher than the foregoing prices.

We have revised our prices from store, as below. A concession of one-half to one point from these prices is allowed by Chicago jobbers on carload orders shipped from local stocks. We quote for less than carload lots as follows:

MERCHANT PIPE.

	—Steel— Black.	Galv.
⅛ to ¼ inch.....	65	49
⅜ inch	67	53
½ inch	69	57
¾ to 6 inches.....	73	63
7 to 12 inches.....	69	54

Store prices for wrought iron pipe, carload lots, from Chicago stock, are as follows: One-eighth to ¼-inch, 61; ⅜-inch, 63; ½-inch, 65; ¾-inch to six inches, 70; 7 inches to 12 inches, 67. Boiler tubes from store are unchanged at 60 off.

Wire Products.—The demand for wire products from jobbers is very good. Manufacturers and implement makers also have contracted very largely for their requirements and are now specifying freely. Plain wire, barb wire and nails show a lively consumptive demand from southern and southwest rural territory. The mills of the leading producer are reported as operating about 75 per cent of capacity. We quote prices as follows:

Wire nails, $2.13; painted barb wire, $2.28; galvanized barb wire, $2.58; smooth annealed wire, $1.98; smooth galvanized wire, $2.28; polished staples, $2.23; galvanized staples, $2.53. Carload lots to retailers, 5 cents higher; less than carload lots, 15 cents higher.

Coke.—With the heavy contracting for the year a thing of the past, the local coke market is moving slowly at present and buying is too desultory and limited in quantity to engender any price changes. Connellsville foundry coke rules at from $2.00 to $2.25 at the ovens, with most of the local shipments at the higher figure and furnace coke of standard Connellsville quality is quoted at $1.65 to $1.85 at the ovens.

Old Material.—It is reported that re-rolling rails on the list of the Chicago & Northwestern railroad were sold for over $16.00, but this seems to be rather out of line with the prices at which they can be bought elsewhere in the market. The same road also disposed of springs it had listed for $13.15. The scrap market continues firm as to prices and well sustained. Holders of old car wheels seem not disposed to let go of them for less than $15.00. The strength of the constituency holding large stocks of scrap in this market offers no evidence of weakening at this writing and upon this depends the maintenance of prices at the level quoted. We have revised our prices and quote as follows, gross tons, in the first paragraph:

Old car wheels	$15.00 to 15.50
Old iron rails	16.50 to 17.00
Re-rolling rails (3 ft. and over)	15.50 to 16.00
Old steel rails (3 ft. and under)	13.00 to 13.50
Light section relayers, 45 lbs. and under, subject to inspection	21.00 to 23.00
Relaying rails, subject to inspection	19.00 to 19.50
Frogs, switches and guards	14.00 to 14.50
Heavy melting steel	13.00 to 13.50

We quote, net tons, as follows:

No. 1 R. R. wrought	$12.25 to 12.75
No. 2 R. R. wrought	11.25 to 11.75
Knuckles, couplers and springs	12.50 to 13.00
Shafting	15.00 to 15.50
Iron car axles	17.75 to 18.25
Steel car axles	16.50 to 17.00
Dealers' forge No. 1	10.00 to 10.50
Pipes and flues	9.50 to 10.00
No. 1 cast, 150 lbs. and less	12.75 to 13.25
No. 1 mill	7.50 to 8.00
Mixed busheling (Nos. 1 and 2)	7.50 to 8.00
Country sheet	5.00 to 5.50
No. 1 boiler cut	9.00 to 9.50
Boiler punchings	10.50 to 11.00
Cast borings	5.50 to 6.00
Mixed borings, etc	5.50 to 6.00
Machine shop turnings	6.50 to 7.00
Railroad malleable	12.00 to 12.50
Agricultural malleable	11.00 to 11.50
Stove plate and light cast scrap	10.50 to 11.00
Old iron splice bars	15.75 to 16.25

CLEVELAND.

Ore Sold on Long Time Contract—Good Showing in Ore Shipments.

Office of THE IRON TRADE REVIEW,
Browning Building, Aug. 4.

Iron Ore.—M. A. Hanna & Co. have sold 1,000,000 tons of ore on a five-year contract, 200,000 tons to be delivered each year beginning with 1908. With the exception of this transaction, the ore market has been very dull. Ore shipments for July made an unexpectedly favorable showing, the total being 4,364,283 tons, a decrease of only 484,834 tons compared with July, 1907. The shipments in July of last year would, however, have been much heavier had not the strike of laborers at the mines and docks occurred during that month. The total for the season is 7,235,281 tons, a decrease of 10,299,460 tons compared with the same period last year. The decrease to July 1 was 9,814,627 tons. It now seems probable that the total shipments will be nearer 25,000,000 than 20,000,000, the estimate which has frequently been made. Shipments by ports are shown in the following table:

	July, 1906.	July, 1907.	July, 1908.
Escanaba	827,097	988,664	483,552
Marquette	451,807	580,746	226,775
Ashland	490,596	657,750	321,361
Superior	917,761	762,753	633,224
Duluth	1,801,096	1,057,319	1,655,125
Two Harbors..	1,274,415	801,885	1,044,246
Total	5,762,772	4,849,117	4,364,283
1908 decrease			484,834
	To Aug. 1, 1906.	To Aug. 1, 1907.	To Aug. 1, 1908.
Escanaba	2,565,505	2,812,879	754,293
Marquette	1,254,794	1,349,805	345,789
Ashland	1,679,359	1,707,107	592,939
Superior	2,671,536	3,081,664	1,111,887
Duluth	4,982,331	5,151,365	2,819,934
Two Harbors...	3,850,943	3,431,921	1,610,439
Total	17,004,368	17,534,741	7,235,281
1908 decrease			10,299,460

Vessel capacity to move about 500,000 tons of ore has been contracted for this week at 65 cents from the head of the lakes. Vessels are still having much difficulty in getting cargoes.

On base ores, with the guarantee of 55 per cent on old range and Mesabi Bessemer, and 51½ per cent on old range and Mesabi non-Bessemer, we quote as follows: Old range Bessemer, $4.50; Mesabi Bessemer, $4.25; old range non-Bessemer, $3.70; and Mesabi non-Bessemer, $3.50.

Pig Iron.—The announcement of the plan of Corrigan, McKinney & Co. to build two blast furnaces has been the leading topic of discussion during the week. This announcement, considered in connection with the action of the same firm in stopping work at its second stack at Joseph-

inc, Pa., indicates that the lake district is being rated with increasing favor as the location for pig iron manufacturing. A small tonnage of Bessemer has been sold to a Cleveland interest at $15.75 valley and inquiries for basic for the first quarter of next year are pending, but the market in steel making irons is extremely dull. There is some interest in foundry iron and a number of sales of fair tonnages have been made. We quote as follows, f. o. b. Cleveland:

Bessemer	$16.55 to 16.65
No. 1 foundry	15.40 to 15.80
No. 2 foundry	15.25 to 15.50
No. 3 foundry	14.90 to 15.25
No. 2 southern	15.85 to 16.10
Gray forge	14.00 to 14.50
Lake Superior charcoal	19.50 to 20.00

Coke.—Some furnace coke which was stored at the ovens has been sold as low as $1.40, but such sacrifice sales are not numerous, and on contracts we quote furnace coke $1.70 to $1.75 and foundry coke at $2.00 to $2.25.

Finished Material. — Specifications against contracts have been coming in very satisfactorily and the general sentiment is improving, but new business is not heavy. The demand for wire products is fairly active, and the American Steel & Wire Co. this week blew in another furnace, it now having four in blast. An inquiry for 300 tons of forging billets is pending. The new Bradley building will require about 300 tons of reinforcing bars. The contract has not yet been awarded.

Old Material.—Considerable business was noted the past week, especially in steel material. Some of the purchasers were mills. Rerollers were advanced 50 cents a ton while the general list was then advanced in like proportion. However, iron and rolling mill material, aside from the steel mentioned, was weaker perceptibly. Quotations have been changed to read thus, f. o. b. Cleveland:

Old iron rails	$16.00 to 16.50
Old steel rails (re-rolling)	15.00 to 15.50
Old steel rails (under 6 ft.)	15.00 to 15.50
Old car wheels	15.00 to 15.50
Old steel boiler plate	12.50 to 13.00
Steel axles	18.00 to 18.50
Malleable iron (railroad)	13.50 to 14.00
Malleable iron (agricultural)	11.50 to 12.00
Heavy steel	14.00 to 14.50
Country mixed steel	12.00 to 12.50
Low phosphorus	16.00 to 16.50

We quote, net tons, as follows:

No. 1 R. R. wrought	$12.50 to 13.00
No. 1 busheling	11.00 to 12.00
No. 1 machine cast	12.00 to 13.00
Iron axles	17.00 to 18.00
Axle turnings	9.50 to 10.00
Machine shop turnings	7.00 to 7.50
Grate bars	11.00 to 11.50
Pipes and flues	11.00 to 11.50
Tank iron	11.00 to 11.50
Hoop and band iron	8.00 to 8.50
Sheet iron	6.00 to 6.50
Wrought drillings	7.00 to 7.50
Stove plate	11.00 to 11.50
Cast borings	7.00 to 7.50

CINCINNATI.

Increased Demand For Pig Iron and the Market is Stronger.

Office of THE IRON TRADE REVIEW,
First National Bank Bldg., Aug. 4.

The southern pig iron situation is stronger and the iron that has been selling on the basis of $11.50, Birmingham, for third quarter delivery has practically been taken in the purchases of the past week. Sales agencies have been urging buyers to come into the market on the $11.50 basis for the past two weeks and these efforts have developed into a large tonnage having been placed. The leading interests in cast iron pipe have bought liberally of southern iron and a considerable tonnage of investment iron has also been taken. Several lots of from 500 to 1,500 tons of both northern and southern foundry and malleable have aggregated a good tonnage. Another large interest closely allied to the railroad interests took 5,000 tons, and a manufacturer of plumbing supplies was in the market today closing for a considerable tonnage. These purchases have taken up the third quarter output of several southern producers and so far as can be learned $11.75 Birmingham is the best that can be done today. The market appears to be strengthening to a $12.00 basis, and some producers have advanced prices to $12.50 Birmingham. The northern situation, while not materially changed, appears to be closer to a $15.00 Ironton basis than a week ago. The heavy purchasing of the past week gives the situation a much stronger tone; as most of the producers who have been willing to accept business at $11.50 Birmingham are now out of the market for the third quarter and one large producer has withdrawn all quotations for the present. There is some inquiry for prices on deliveries for next year, but as a rule producers decline to make quotations beyond the last half. The buying of the past week appears to have been mainly from the large consumers and the rank and file of foundries continue to show but little interest in the market. We quote for prompt shipment and third quarter, delivered Cincinnati, based on freight rates of $3.25 from Birmingham and $1.20 from Ironton, as follows:

Southern foundry No. 1	$15.50 to 15.75
Southern foundry No. 2	15.00 to 15.25
Southern foundry No. 3	14.50 to 14.75
Southern foundry No. 4	14.00 to 14.25
Southern No. 1 soft	15.50 to 15.75
Southern No. 2 soft	15.00 to 15.25
Southern gray forge	13.75 to 14.00
Northern No. 1 foundry	16.70 to 17.20
Northern No. 2 foundry	16.20 to 16.70
Northern No. 3 foundry	15.70 to 16.20
Northern 8 per cent silicon	19.70

Finished Material. — Specifications on contracts have been fairly good the past week, but new mill business is quiet. The jobbing trade from stores shows improvement, but there is no change in prices. Jobbers are filling small orders here at the following quotations:

Iron and steel bars, 1.85c to 2c, full extras, angles, 3 x 3 and over, 2.10c to 2.25c; beams and channels, 15 inches and under, 2.10c to 2.25c; small angles and architectural channels, 2c base; plates, ¼-inch and heavier, 2c; 3-16-inch, 2.10c; No. 8, 2.15c; sheets, blue annealed, No. 10, 2.15c to 2.25c; No. 12, 2.20c to 2.30c; No. 14, 2.25c to 2.35c; No. 16, 2.35c to 2.45c; box annealed sheets, Nos. 18 and 20, 2.55c to 2.65c; Nos. 22 and 24, 2.65c to 2.75c; Nos. 25 and 26, 2.70c to 2.80c; No. 27, 2.75c to 2.85c; and No. 28, 2.85c to 2.95c; boiler tubes, 2¾ to 5 inches, 62 per cent off base; turn-buckles, 45 per cent off; rivets, 3c base; cold rolled shafting, 47 to 50 per cent off list; steel tire, 2.05c to 2.10c base.

Coke.—Spot coke is in liberal supply and is obtainable at prices considerably below the basis upon which ovens will make contracts. This has a tendency to keep consumers from contracting, as they can purchase their current needs on a more satisfactory basis. The producers, however, while recognizing this situation, are firm in their views on contracts and seem to be inclined to maintain their asking prices. Contract quotations in the leading coke producing districts are as follows:

	PER TON.
Wise county furnace coke	$1.60 to 1.85
Wise county foundry coke	2.10 to 2.25
Pocahontas furnace coke	1.75 to 1.85
Pocahontas foundry coke	2.00 to 2.25
Standard Connellsville furnace coke	1.85 to 2.00
Standard Connellsville foundry coke	2.25 to 2.40
Connellsville district furnace coke.	1.60 to 1.80
Connellsville district foundry coke.	2.00 to 2.25

Old Material—There has been considerable shopping between dealers and it is evident that efforts are being made to cover short sales. This has put prices on a firmer level and quotations are slightly higher, although the demand from melters has shown but little improvement. We quote dealers' prices to consumers as follows:

Old No. 1 R. R. wrought, net tons	$11.50 to 12.50
Cast machine and fdy., net tons.	12.00 to 12.50
Old iron rails, gross tons	14.00 to 14.50
Old steel rails (re-rolling) gross tons	13.25 to 13.75
Old short lengths, gross tons	12.50 to 13.00
Old iron axles, net tons	16.00 to 16.50
Heavy melting scrap, gross tons.	12.50 to 13.00
Stove plate, net tons	10.00 to 10.50
Wrought turnings	5.50 to 6.50
Cast borings, net tons	4.50 to 5.00
Car wheels, gross tons	13.50 to 14.50

NEW YORK.

Moderate Activity in Pig Iron—Southern Interests Firmer.

Office of THE IRON TRADE REVIEW,
Room 1005, No. 90 West St., Aug. 4.

Pig Iron.—The past week in the eastern district has been featured by moderate activity, chiefly in the New England territory, with producers steadily becoming more inclined to turn down business for advanced delivery and the price level tending upward. One seller of southern iron last week disposed of about 1,200 tons, practically all of which went to New England. A large melter in southwestern Connecticut bought about 1,900 tons of various grades for early delivery, mostly rather high in silicon, but including about 400 tons of low. A lot of 600 tons for another New England consumer involved analysis iron equivalent to No. 1X grade and was placed at $17.25, delivered, which netted slightly under $15 at the furnace. It develops that considerable iron is now being purchased without the general circulation of inquiries, the result being that much of the current business is not coming to light. In this class is a lot of 15,000 tons bought by a large pipe interest in upper New York state some little time past but not heretofore reported. An eastern Pennsylvania interest controlling two stacks has advanced its price 50 cents, as has another Pennsylvania interest selling into this territory. Virginia furnaces are very firm and southern interests have stiffened considerably. A good tonnage is involved in inquiries sent out last week but not yet closed. We quote, tidewater delivery, third quarter, as follows:

Northern foundry No. 1	$16.50 to 17.00
No. 2X foundry	16.00 to 16.50
No. 2 plain	15.50 to 16.00
No. 2 southern foundry	16.00 to 16.50
Malleable	17.50 to 18.00
Basic	15.00 to 15.50
Gray forge	15.25 to 15.75

Ferro-Alloys.—A sale of 150 tons of ferro-manganese at $43.50, Baltimore, is reported, and there is considerable pressure to sell by an importer who has a cargo in shortly. A good inquiry is noted in 50 per cent ferro-silicon, but other alloys are quiet.

July bookings of the American Bridge Co., which again fell short of securing the proportion of current business it usually takes in normal times, totalled about 18,000 tons, against 12,000 tons in June and 22,000 in the best month so far this year. July orders were about one-third those of July, 1907, but the indications are for further improvement during August, as railroads are showing more inclination to buy. One lot of bridge work for the Seaboard Air Line, involving about 2,250 tons, went to the Virginia Bridge & Iron Co., and another of 500 tons for the Pennsylvania lines west went to another independent interest.

The bar iron market is in better shape. A 500-ton inquiry for delivery running over three months has been current the last few days and has brought out a higher level of prices, ranging from 1.45c to 1.50c, with mills unwilling to contract for extended delivery. For early delivery, bars are still weak. In other lines conditions remain unchanged and we quote: Angles, 3 to 6 inches x ¼-inch and heavier, 1.76c; beams, 3 to 15 inches, 1.76c; tees, 3 x ¼-inch and heavier, 1.81c; plates, carloads, tanks, 1.76c; marine boilers, 2.16c; bar iron, 1.46c; soft steel bars, 1.56c; sheets, No. 28, black, 2.66c.

Old Materials.—Dealers are apparently convinced that better prices are in prospect and are refusing to sell except at considerable advances over the level heretofore prevailing. Mills refuse to meet these figures and buying is consequently confined to scattered lots for immediate requirements. Iron mills seem to be operating more extensively. We quote, gross tons, New York delivery, as follows:

Old iron rails	$14.00 to 14.50
Old steel rails, re-rolling	14.00 to 14.50
Relaying rails	20.00 to 21.00
Old car wheels	12.00 to 12.50
Old iron car axles	17.50 to 18.00
Old steel car axles	16.00 to 16.50
Heavy melting steel	12.00 to 12.50
No. 1 railroad wrought	14.00 to 14.50
Iron track scrap	12.50 to 13.00
Wrought pipe	10.00 to 10.50
Cast borings	6.50 to 7.00
Wrought turnings	7.50 to 8.00
Heavy cast scrap	12.50 to 13.00
Railroad malleable	10.00 to 10.50
Stove plate	9.50 to 10.00
Grate bars	9.50 to 10.00

PHILADELPHIA.

Good Showing for July in Pig Iron Sales—B. & O. Orders Rails.

Office of THE IRON TRADE REVIEW,
408 Central Trust Bldg., Aug. 4.

Pig Iron.—For some of the furnaces in this territory, July proved to be the best month of the year in the matter of sales, and practically all of them find that they did more business in the month just closed than in July, 1907. Others found May a better month. The increase, as compared with last year, was over one-third in the case of one interest. It is pointed out, however, that the falling off of business really began with July, 1907, and prices for the month just passed are much less satisfactory than a year ago. Sales during the past week have ranged from carload lots to 1,000 tons. An order for the latter amount was taken for delivery over the last half. The demand is mostly for foundry grades. Inquiry continues for third and fourth quarter and quotations are asked on delivery in 1909. An advance of 50 cents is asked for fourth quarter and from $1 to $1.50 in 1909. No. 2X Virginia is being quoted at $16.50 to $16.75 Philadelphia. Southern iron remains at $12, Birmingham. We quote as follows for third quarter delivery, f. o. b. Philadelphia:

No. 1X foundry	$17.00 to 17.50
No. 2X foundry	16.50 to 17.00
No. 2 plain	16.00 to 16.50
Standard gray forge	15.25 to 15.50
Basic	15.25 to 15.50
Low phosphorus	21.00 to 21.50
No. 2 Birmingham	15.75 to 16.25
No. 2 Virginia	16.75 to 17.00

New Materials.—The market in finished lines is somewhat quieter, the principal demand being for shapes. The B. & O. R. R. has placed an order for 14,500 tons of rails, divided between the Corporation, the Maryland Steel Co., and the Bethlehem Steel Co., the latter getting 1,200 tons to be made by the open-hearth process. The Maryland Steel Co. got about 6,250 tons of the order. Prices are as follows: Structural, 1.75c to 1.90c, according to specifications; steel plates, 1.75c to 1.80c; refined iron, 1.35c to 1.40c; steel bars, 1.50c to 1.55c.

Old Material.—The Pennsylvania railroad has sold 6,000 of its 40,000 tons of old steel rails at $16. The principal demand is for steel scrap for plates and shapes, axles, and stove plates, the latter on account of the scarcity of gray forge.

Old steel rails	15.00 to 16.00
No. 1 steel scrap	14.50 to 15.00
Old steel axles	18.50 to 19.00
Old iron axles	22.00 to 23.00
Old iron rails	18.25 to 18.75
Old car wheels	14.50 to 15.00
Choice scrap R. R. No. 1 wrought	16.25 to 16.75
No. 1 yard scrap	14.50 to 15.00
Machinery scrap	14.50 to 15.00
Low phosphorus scrap	18.50 to 19.00
Wrought iron pipe	13.50 to 14.00
No. 1 forge fire scrap	12.00 to 12.50
No. 2 forge fire scrap, ordinary	9.00 to 10.00
Wrought turnings	10.50 to 11.00
Axle turnings, heavy	12.00 to 12.50
Cast borings	9.25 to 9.75
Stove plates	11.50 to 12.00

BUFFALO.

Inquiry for Pig Iron Improves, but Sales Not So Numerous.

Office of THE IRON TRADE REVIEW,
932 Ellicott Square, Aug. 4.

Pig Iron.—So far as inquiries are concerned, there is a slight improvement in the market here, but sales of the past week were not so heavy as those of the previous week. The outlook for better conditions continues good. There have

been some inquiries from other districts and offers of tonnage, consumers apparently being interested in small lots. Inquiries for big tonnage were conspicuous for their absence.

A good deal of the tonnage placed is moving eastward and more of it via Erie Canal than usual. There is always some pig iron moving eastward on the canal, but some consumers, especially those not obliged to pay switching charges, find the canal route economical. Prices have not changed in the past week. We quote f. o. b. Buffalo as follows:

No. IX foundry	$16.00 to 16.50
No. 2X foundry	15.50 to 16.00
No. 2 plain	15.00 to 15.50
No. 3 foundry	15.00 to 15.50
Malleable Bessemer	16.00 to 17.30
Gray forge	14.75 to 15.25
Charcoal	20.25 to 20.75

Finished Material.—Aside from figuring on some prospective business of the better class, the market for finished material is rather quiet, but offering a better outlook than the preceding month.

ST. LOUIS.

Renewed Strength in Southern Pig Iron.

Aug. 3.

Pig Iron.—St. Louis dealers are confidently expecting to book orders this week for a good tonnage of pig iron. The market seems to show some renewed strength, with quotations resting at $12 to $12.50, Birmingham, for No. 2, with plenty of $12 iron offered. Inquiries are out for 3,000 to 3,500 tons for shipment during the remainder of the present year and the first quarter of 1909. Our quotations delivered, to which freight of $3.75 from Birmingham has been added, follow:

No. 1 southern	$16.25 to 16.75
No. 2 southern	15.75 to 16.25
No. 3 southern	15.25 to 15.75
No. 4 southern	14.75 to 15.25

Coke.—There has been no change in the coke situation since last report, prices remaining at $2.15 to $2.50 for the best selected 72-hour Connellsville foundry, f. o. b. ovens; $1.60 to $2 for the best selected Connellsville furnace, ovens, with Virginia and West Virginia unaffected. The freight rate to East St. Louis is $2.80 and to St. Louis $2.90.

Old Material.—The scrap iron market is still dull. Our quotations follow:

Cast iron borings, free from foreign material, net ton	$ 4.50
Steel axle turnings, net ton	8.00
Steel railroad axles, net ton	13.50 to 14.00
Iron railroad axles, net ton	15.50
Miscellaneous steel scrap, gross ton	9.75
Old car wheels, gross ton	14.00 to 14.50
No. 1 railroad cast scrap, net ton	10.50
Heavy machinery cast, net ton	11.50
Stove plate and light cast, net ton	9.00
Sheet iron, net ton, uncut	3.00
No. 1 railroad wrought, net ton	10.00 to 10.50
Railroad malleable, net ton	11.00
Heavy melting steel, net ton	10.00

Rates on coke from the various West Virginia and Virginia coke producing centers to East St. Louis will on and after Sept. 1 be applicable to St. Louis, Mo. This means that the railroads will after that date absorb the St. Louis bridge toll of 30 cents per ton.

BIRMINGHAM, ALA.

Strike Is Not Seriously Interfering with Iron and Steel Plants.

Aug. 3.

Though still interested somewhat in the union coal miners' strike, determined not to give in to the organization, the Alabama pig iron manufacturers continue to transact some business. The iron market is improving slowly but surely. The quotations are strengthening somewhat and the prospects are bright. Now and then an order of more than the average size is received and on all sides the sentiment appears to look towards a better condition. The coal and coke supplies are being watched closely and to meet all emergencies contracts have been let for a supply of the products in other states, Tennessee to furnish a quantity of coke for use in the furnaces. The $11.50 per ton iron, No. 2 foundry, which was admitted a few weeks ago, is not heard of any more and the quotations are now stated at $12 and more. Positive announcement is reiterated that the furnaces are doing well and that the output in pig iron is as good as it was before the miners' strike began. Some iron to be seen on furnace yards in the immediate district is product that was sold some time since and awaits instructions as to delivery on the part of consumers.

An official statement is made by the head officials of the Tennessee Coal, Iron & Railroad Co. as to the four furnaces and the steel plant at Ensley during the past month. The strike has been on since July 6. The statement just made shows that 42,022 tons of ingots were produced last month against 39,298 tons in March, the best previous month's output. The blooming mill of the steel plant produced last month 37,124 tons against 35,147 tons, the best record previously. Other blast furnaces besides those of the Tennessee company at Ensley made a large quantity of iron during the past month. The Sloss-Sheffield Steel & Iron Co. had no falling off in its production of iron. The Woodward Iron Co., the Alabama Consolidated Coal & Iron Co., the Birmingham Coal & Iron Co., and others, too, make favorable reports as to the iron production. In all quarters, the announcement is made that an improved market will be cared for without any trouble.

GERMAN IRON MARKET.

Prices Still Declining and Prospect is Very Gloomy.

Dusseldorf, July 20.—Our iron and steel market continues to remain in its stagnant and discouraging state. Further reductions in prices for pig iron, bar iron, etc., have been made during the last fortnight, but without resulting in increase of orders. Just to the contrary, these continual reductions in prices show that buyers and consumers continue their conservative policy and that they buy only the very smallest quantities. The worst part of the market is decidedly bar iron, which price is quoted officially still with 100 marks ($24.80), but it can easily be bought for inland as well as for export at 92 marks $21.90) at maker's works or f. o. b. Rotterdam or Antwerp respectively. This is the very lowest price we have seen in many years, but it is not impossible that German bar iron will be sold still cheaper.

Luxemburg puddling pig iron is now down to 50 marks ($11.90) Westfalian foundry No. 3 at 69 marks ($16.40), Westfalian foundry No. 1 at 72 marks ($17.15), hematite at 75 marks ($18), spiegeleisen with 10-12 per cent manganese at 80 marks ($19) Westfalian Thomas pig iron at 65 marks ($15.45), but all these prices are nominal and the pig iron syndicate will make more or less considerable reductions, if same are necessary to meet the competition.

The movement of the not mixed works to get the government to abolish the import duties on foreign pig iron and semi-finished material, has not made any progress yet. Also the efforts of renewing the pig iron syndicate in the form of a German pig iron trust have not yet shown any practical result and more and more it is believed that after Oct. 1 this year pig iron will be sold freely without a syndicate.

In coke, the stocks at the Westfalian mines now amount to at least 1,000,000 tons, and this is principally

due to the bad position of the iron market.

The cheaper money—our bank rate is now down to 4 per cent—has not brought about any improvement in the situation; on the contrary, the prospects for the future remain gloomy and discouraging and there are no signs yet that confidence will return soon.

METAL MARKET

CHICAGO.

Aug. 4.

A very decided improvement in the metal market is reported. Sales are more numerous and in better quantities. Copper, tin and lead prices advanced during the week. We quote prices on small lots as follows:

Lake copper, 14c to 14¼c; casting, 13¾c; pig tin, 33c to 33½c; spelter, 5c to 5.10c; pig lead, desilverized, 4.70c to 4.85c in 50-ton lots; corroding, 4.85c to 4.95c in 50-ton lots; car lots, 2½c per 100 pounds higher; sheet zinc, 7c list, f. o. b. LaSalle, in car lots of 600-pound casks; Cookson's antimony, 11c to 11½c; other grades, 10c to 10½c.

The advance in metals is reflected in the scrap metal market and fractional increases are noted on almost all classes of material. We quote to dealers as follows:

Copper wire, 11½c; heavy copper, 11½c; light copper, 10¾c; heavy red brass, 10¾c; heavy yellow brass, 8½c; light brass, 6½c; No. 1 red brass borings, 8½c; No. 1 yellow brass borings, 7¾c; brass clippings, 8½c; tea lead, 3½c; lead scrap, 3¾c; zinc, 3.10c; tin pipe, 25c; tin foil, 20c; pewter, 18c; electrotype plates, free from wood, 4⅛c; electrotype dross, 2¾c; stereotype plates, 4½c; stereotype dross, 3¼c; prime slab zinc, $55 per ton.

ST. LOUIS.

Aug. 4.

Lead and Zinc.—More ore was sold in the Joplin district last week than for several weeks previously, zinc ore advancing from 50 cents to $1.50 a ton, with a high price registered of $38. The bulk of the ore changed hands at $34.50 to $36 base for 60 per cent ore. There was almost as great an advance in lead ore, sales having been made at $58 to $60 a ton. Toward the close of the week there was a marked activity in the buying movement, indicating a strong demand and probably higher prices this week.

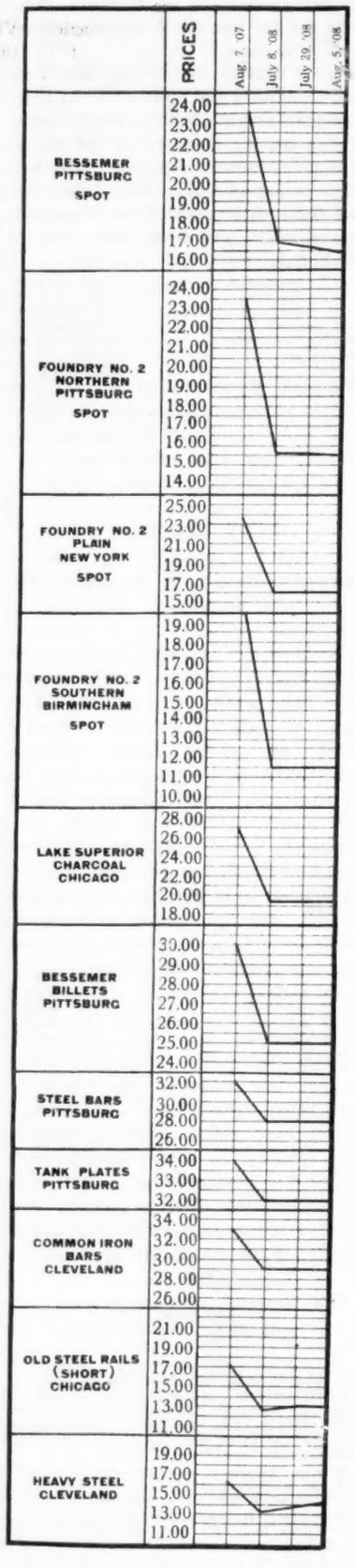
Shipments were much better and there was not a great deal of ore left in the bins when the week closed.

RATES ON CONSOLIDATED SHIPMENTS.

The Interstate Commerce Commission has ruled during the week that small quantities of freight may be combined and shipped in large lots, although they may be of various ownership, and that this may be done either by arrangement among the shippers themselves or through the medium of a forwarding agency. Such shipments, to have the benefit of the relatively lower rates applicable to large shipments. The commission bases this decision upon the ground that the ownership of property tendered for shipment cannot be made a test as to the applicability of the carrrier's rates. The interstate commerce law forbids discrimination between shippers and the fact that one shipper tenders a "bulked shipment" made of property of various ownership, consolidated before delivery to the carrier, does not justify the carrier in making a different charge than for a shipment of similar character tendered by a shipper who is also the owner. The decision was made by Commissioner Lane, based on a complaint of the California Commercial Association vs. Wells Fargo & Co. The express company refused to apply its quantity rates to shipments which consisted of a combination of packages of various ownership tendered at one time and one place by a single consignor and consigned to a single consignee, under one bill of lading.

This ruling is regarded as important, especially to the machinery interests of the country, as they have felt keenly the injustice of the withdrawing of the consolidated carload privilege. So far as can be learned, railroads have not yet changed their classification or signified their willingness to allow forwarding of combination carloads at the carload rate, but it is the opinion of some railroad officials that the ruling of the commission will have the effect of inducing some of the weaker lines to open up this privilege for the purpose of securing traffic and in this way competition may result in forcing the stronger lines to adopt the same policy. It is too early as yet to forecast what effect the decision will have or how vigorously it may be resisted by the railroads.

PRICE CHART.



HEALTHY INCREASE IN PIG IRON PRODUCTION.

Our blast furnace figures this month show a healthly increase in production during July over June, both in total tonnage and in daily production. The returns show that the total pig iron produced including ferro and spiegel amounted to 1,225,363 tons, compared with 1,106,300 tons in June, an increase of 119,021 tons. The production is divided among the merchant and non-merchant companies, as follows: The merchant companies produced 419,801 tons, while the non-merchant companies produced 789,442 tons; the production of spiegel and ferro during the month being 16,162 tons. The increased production was divided quite evenly between merchant and non-merchant iron, the increase in the former being 65,032 and in the latter 55,867 tons. There was a slight decrease in the production of spiegel and ferro.

The greatest increase in production was in Pennsylvania, which produced approximately, 75,000 tons more iron in July than in June. Four-fifths of this increase in production was due to the steel companies, the merchant companies contributing only about 15,000 tons to the increase. Ohio shows a net increase of about 20,000 tons, due entirely to the merchant companies, the steel companies having decreased their production 19,000 tons, while the merchant companies increased theirs 39,000 tons. Alabama shows an increase of, approximately, 10,000 tons, which is entirely steel making iron, the merchant production falling off 5,000 tons. Virginia, New York and Georgia each show an increase of, approximately, 5,000 tons, the increase in New York being about 3,500 tons merchant iron and 1,500 tons steel making iron. Illinois has a net increase of 1,500 tons, due entirely to merchant iron, steel making iron falling off 1,500 tons. The Maryland group shows an increase of about 1,500 tons, due entirely to steel making iron. Only two states show a decrease in production, these being New Jersey and the Tennessee group, which fell off approximately 1,000 tons each.

The average daily production throughout the month was 39,592 tons. This compares favorably with the average daily production during June of 36,876 tons. The active furnace capacity in blast also shows a good increase, the total average daily capacity in blast on July 31 being 41,274 tons, compared with 39,419 tons iron daily capacity on June 30. The number of stacks in blast has increased by 11, eight of these being in Pennsylvania, two in Ohio and one in Virginia. The total number of stacks in blast on July 31 was 165, compared with 154 on June 30. The active capacity in blast showed increases in a number of states, Pennsylvania having 40.4 per cent of its capacity in operation, compared with 36.2 per cent in June. The Virginia, Georgia and Maryland groups also show increases in active capacity of about 10 per cent, while the other states remain at about the figures they were on the last day of June. The total active capacity in blast throughout the country shows an increase of 2.5 per cent, it now being 39.9 per cent.

JULY FURNACE REPORT.

STATES—	NO. OF STACKS.	NO. IN BLAST ON LAST DAY OF MONTH. JULY.	JUNE.	PERCENTAGE OF TOTAL POSSIBLE OUTPUT MADE.	AV. DAILY CAPACITY IN BLAST LAST DAY OF MONTH.	ACTUAL TONNAGE MADE. MERCHANT	NON-MERCHANT	TOTALS. JULY.	JUNE.
Pennsylvania	153	66	58	40.4	18,493.2	111,928	414,616	526,544	451,121
Ohio	63	26	24	38.7	7,451.6	90,443	123,649	214,092	194,192
Alabama	45	19	19	40.3	4,121.1	82,080	42,790	124,870	114,319
Virginia	24	11	10	44.4	936.1	28,136	———	28,094	23,768
New York	24	8	8	33.3	2,142.4	36,625	29,794	66,419	61,345
New Jersey	9	2	2	22.2	478.4	14,830	———	14,830	15,693
Illinois	24	14	14	55.9	4,600.4	10,434	128,702	139,136	137,729
Tennessee	18	8	7						
West Virginia	4	1	1	32.4	804.6	20,223	5,433	25,656	26,361
Kentucky	7	0	1						
Maryland	4	2	2						
Wisconsin	6	2	2						
Colorado	6	...	2	41.7	1,787.0	11,026	44,416	56,212	54,259
Indiana	1	1	1						
Georgia	2	0	0						
Texas	3	1	1						
Minnesota	1	0	0	33.3	454.2	14,076	———	14,076	9,245
Michigan	2	1	1						
Missouri	1	1	1						
Spiegel—All states								6,958	12,669
Ferro—All states								9,204	5,329
Totals	397	165	154	39.9	41,273.5	419,801	789,442	1,225,363	1,106,300

BLAST FURNACE NOTES.

The Zenith Furnace Co., West Duluth, Minn., is relining the stack, installing new boilers built by the Babcock & Wilcox Co., erecting new engines built by the Wm. Tod Co., and repairing the power house.

South Chicago Works, stack No. 8 of the Illinois Steel Co., blew out July 1.

Three newly constructed merchant stacks in Ohio have not been blown in since their completion.

Lorain furnace No. 3 of the National Tube Co. was blown in July 12, and Monongehela furnace No. 2 on July 16.

Martins Ferry, O., stack of the Wheeling Steel & Iron Co. began blowing July 19.

The Steel Corporation had 29 stacks in blast on Aug. 1, a gain of six over July 1.

The Rockdale, Tenn., stack of the Rockdale Iron Co. ran on ferro-phosphorous from July 3, and will probably run on ferro until about Aug. 15.

ALUMINUM PLANT BUILDING.

At a meeting of the stockholders of the Aluminum Coating Co. of Pennsylvania, held July 28 at Connellsville, Pa., the following directors were elected: Wert Kilpatrick, Dr. H. F. Atkinson, J. D. Madigan, J. A. DeWitt, C. H. Brown, J. C. Moore of Dawson, Pa., and H. C. Hoffecker, Wilmington, Del. The Industrial Engineering Co. of Philadelphia has begun work on the new plant for the aluminum company.

Duty on Malleable Castings.—The board of United States general appraisers held in protests of W. A. Fleetham, Detroit, that malleable castings were dutiable at 0.9 cent per pound under paragraph 149 of the tariff and not at 45 per cent, the rate assessed, under paragraph 193. The board found from examination of the official samples that the articles were iron castings upon which no labor nor manufacture had been bestowed subsequent to the casting process. Protests were accordingly sustained.

THE IRON TRADE REVIEW

Devoted to Iron and Steel Manufacture and to the Machinery, Metal-Working and Foundry Trades

PUBLISHED EVERY THURSDAY BY
THE PENTON PUBLISHING CO.
CLEVELAND.

BOSTON.....73-74 Journal Bldg.
BUFFALO.....932 Ellicott Sq.
CHICAGO.....1328 Monadnock Blk.
CINCINNATI.....First National Bank Bldg.
NEW YORK.....1005 West Street Bldg.
PHILADELPHIA.....408 Central Trust Bldg.
PITTSBURG.....510 Park Bldg.

Subscription, United States and Mexico, $3.00 per annum. To Canada and Foreign Countries, $4.50. Advertising Rates Furnished on Application.

Change of advertising copy must reach this office ten days preceding date of publication.

The Cleveland News Co. will supply THE IRON TRADE REVIEW through the regular channels of the American News Co.

European Agents: The International News Company, Breams Building, Chancery Lane, London, E. C., England.

ENTERED AT THE POST OFFICE AT CLEVELAND AS SECOND CLASS MATTER.

PRINTED IN AN OPEN SHOP.

COPYRIGHT 1908 BY PENTON PUBLISHING CO.

August 6, 1908.

OPPORTUNITIES FOR EXPERIMENT.

Periods of lessened demand afford rare opportunities for manufacturers to better their position in matters which cannot be attacked when the pressure for material is great. The opportunity offered for the weeding out of inefficient workmen is often referred to as one of the consolations of a period of reduced pressure. Besides the weeding out process, there is the movement towards greater efficiency on the part of the workmen who remain.

With the materials produced, there is a similar opportunity for improvement. In the case of products of special design, there is sometimes a disposition to wait until there is a heavier demand, before a new form is brought out, because they fear the usually attendant campaign will not return as good results for the expenditure. This is sometimes the attitude of machine tool builders, on the ground that it is better to bring out a new tool when there is a heavy demand and more interest is excited. The following of this policy, however, does not preclude the work of designing being prosecuted with special assiduity, although the giving out of the result may be delayed for what is regarded as a more fitting time.

When the material produced is one which is sold in regular course and not upon "talking points" or argument as to quality, the work of improvement is best prosecuted in times of slackness, and there is no argument for delay. It is particularly fitting that the steel industry should at this time endeavor to find means of improving the quality of steel. In the past few years of extreme prosperity, there have been great changes in fundamental conditions which present the matter of steel quality and toughness in new aspects. These changes have been numerous. For instance, the demand, in point of tonnage, has greatly increased, to such an extent that occasionally fear is expressed that with the rapid and continued increase in demand the time may be reached, within a period which it is only the part of wisdom to consider, when our reserves of raw materials will prove to be insufficient. To postpone such a development, an improvement in quality, whereby one ton of steel may do the work which otherwise might require a ton and a half, would do much. Again, the cost of the raw materials of steel making has greatly increased, and it is the common assumption that much of the increase bids fair to be permanent. If so, the increased cost of the raw materials justifies a greater expense in converting these raw materials into finished product, just as it pays to put a better marksman behind a rapid fire gun than an old fashioned muzzle loader. The same expenditure would be a smaller percentage on the higher priced material than on the lower priced. Furthermore, conditions as to utilization have changed, whereby the duties are heavier, in the sense that in certain connections it is better to provide for the given duty by using a higher grade of steel than by using a larger tonnage.

The present is an excellent time for steel manufacturers to consider the question of improving the quality of steel, and for steel users to consider the question of improving the quality of their finished products for which they use steel, and this in a broad way and irrespective of the prices which may be charged in individual cases, as there are general principles involved. Evidences that there has been a great change in the conditions governing the quality of steel desired, since the last period of general quietness in the steel trade, can easily be multiplied.

If the addition of 50 pounds of nickel to a ton of steel makes a certain improvement in the physical properties of the steel, it is a totally different case if steel, without nickel, is worth $25 a ton, than if it is worth only $15, and this principle applies, generally speaking, to all alloys of steel.

A careful reading of some of the literature on the quality of steel in rails, such, for instance, as Charles B. Dudley's presidential adress before the American Society for Testing Materials, recently printed in THE IRON TRADE REVIEW, discloses clearly the idea that on account of the heavier train loads and faster speed, it may be better to improve the rail by using better steel than by using a heavier section, because it may be that the heavier section affords less elasticity than may be desirable. Dr. Dudley intimates that there has not been sufficient investigation to show positively whether this is so or not. In other words, the railroads may be able to accomplish their purpose better by spending an increased sum, to lay a mile of track, by calling for a higher grade of steel than by calling for a larger number of tons. The conditions as to utilization of steel rails have changed, and conditions have changed in other directions.

At one time the steel involved in a steel framed office building constituted a practically negligible proportion of the total load to be borne by the lower portion of the frame work. With the development of very high buildings, the proportion of steel to total load has increased to such an extent that in some of the largest office

buildings now being erected the weight of the steel itself is an important percentage of the total load. In such cases, it might be better to use a stronger steel, at a higher price per ton, but perhaps not at a higher price relative to the service performed. A simple illustration of the principle here involved is furnished by a deep mine shaft. A steel wire will break of its own weight when it is 2,941 feet long for every 10,000 pounds of tensile strength it possesses. If steel can be of only 40,000 pounds tensile strength, a rope 11,764 feet long is on the point of breaking, when suspended, although bearing no weight but its own. Were it necessary to carry a load at such a depth, the steel would perforce have to be of greater strength, and at less depths it would be economical to use stronger steel, even if at a materially higher price.

These are problems which the development in the use of steel has produced in the past few years. They are new problems, which steel manufacturers and users have had little opportunity to consider, but which can well be considered at this time, since it is certain that they will be important factors in the future.

HARRIS TABOR.

In this age of wonderful inventions, the molding machine has not attracted the attention of men generally to such a great extent as have other products of inventive genius, some of which have not been so useful to mankind. It certainly is not so spectacular as the flying machine, nor has it received the newspaper publicity accorded to countless other machines, but in one great branch of the iron business, that of the art of founding, it stands as the greatest labor saving device produced by the mind of man in many years. Its accomplishments are alreay most important, although it is still in its infancy.

As in the case of nearly all great inventions, no one man is entitled to the sole credit for the invention of the molding machine, but certainly no one did more in making molding by mechanical process a commercial success than did Harris Tabor, who died last week. While originally an engineer, ranking high in his profession, and an authority on matters pertaining to the steam engine and its increased efficiency, the last 20 years of his life were devoted largely to the development of the molding machine. Only those who knew him most intimately ever learned of the discouragements in the way of success which had often seemed insurmountable, and yet, with that quiet patience and untiring persistence which his friends admired so much, every obstacle was gradually overcome.

Mr. Tabor was an exceedingly modest man and seldom talked of his achievements, but a few months ago he remarked to a friend that many of the principal users of molding machines were those who a few years ago ridiculed the idea that it would ever be possible to do those things which the machine is doing with the utmost satisfaction at the present time.

While as a mechanical engineer, inventor and manager, Harris Tabor made his mark, it will be as a modest, kindly, gentle and sympathetic friend that he will be remembered by those who enjoyed his friendship. Few men connected with those pursuits among which he spent his life had as many earnest and sincere admirers and devoted friends.

DOMESTIC CONSUMPTION OF PIG IRON THIS YEAR.

Statistics of pig iron production, as presented last week, are as follows for the past three half years:

Pig Iron Production.	Gross tons.
First half, 1907	13,478,044
Second half, 1907	12,303,317
First half, 1908	6,918,004

The production in the first half of this year shows the greatest decline ever recorded from one half year to the next; it was 56.2 per cent of the production in the second half of last year, and 51.3 per cent of the production in the first half. It is only an incident of the exact time at which production began to slump that the decrease is greater from the first half than from the second half of last year. The production July to October, inclusive, last year, was at a greater rate than the production in the first half, it being only the slump in the two closing months of the year which prevented the second half showing a gain over the first half.

It is interesting to note that the consumption of pig iron in the manufacture of finished products for the domestic market has undergone a larger decline in point of percentage than has the actual production of pig iron. This arises from the two facts that exports of iron and steel have undergone a relatively slight decrease, while imports have undergone a great decrease.

Our exports of iron and steel may be compared by reducing them to pig iron equivalent. We do this by adding 10 per cent to the tonnage of all steel products, which covers the loss of metalloids in the manufacture of steel and the scale produced in heating and rolling. On this basis, disregarding scrap exports altogether, and assuming that June exports were equal to May exports, our exports become, in pig iron equivalent, 659,650 gross tons in the first half of 1907, and 518,768 tons in the first half of this year. Subtracting these tonnages from the production, it is found that the pig iron which stayed at home was 12,818,394 tons in the first half of last year, and 6,399,236 tons in the first half of this year, showing a decline of a trifle above one-half.

That, however, is only a portion of the correction to be applied. It will be recalled that in the first half of last year we were importing pig iron at an average rate of more than 50,000 tons a month, the bulk of the tonnage being ordinary pig iron brought over on account of the temporary scarcity in the east. Our imports of all iron and steel, the bulk being pig iron, amounted to 418,301 tons in the first half of 1907 and 102,458 tons in the first half of this year, assuming June to have shown no change from May.

Adding these tonnages to the domestic supply found above, it is found that the total domestic consumption was equal to 13,236,695 tons in the first half of 1907 and 6,501,694 tons in the first half of this year, the latter being 49.1 per cent of the former, showing a decline of 50.9 per cent.

The prospect for the second half of this year is easily a much more favorable one. There has been much talk of the sharpness with which producers have curtailed production in this movement. Such talk is largely gratuitous. There was no other course open. Possibly the tendency to accumulate stocks of foundry pig iron has been somewhat less than at similar junctures in the past, but as to steel products the reduction is not subject to the preference of the producer.

The withholding of specifications and the disturbance to credits force the curtailment.

What is really remarkable in this movement is not the curtailment of production, as an act of the producer, but the curtailment of consumption, as the act of the consumer, to which has been added the most drastic curtailment of stocks on the part of jobbers. The distinction is merely one in the machinery of distribution and is not of especial importance. The important fact is that ultimate consumption suffered the quickest reduction ever experienced, and to this was added the curtailment of stocks, in the hands of both consumers and dealers, whereby production has declined just a trifle over 50 per cent. The curtailment in ultimate consumption has been a trifle less than 50 per cent on account of the almost complete disappearance of stocks of steel products. This augurs a relatively speedy improvement in ultimate consumption, and as the decline in production was greater than in consumption, so the increase in production will be somewhat greater than the increase in consumption, until more nearly normal stocks of steel products are restored. It is well understood that in many lines, such as sheets, pipe, merchant bars, wire, etc., the mills have been filling small orders which normally are filled from jobbers' stocks. The least prolongation in the promised time of delivery by mills will force the restoration of jobbers' stocks, and bring a larger accretion of business to the mills, which will no longer fill jobbing orders.

BUILD STREET CARS.

The Barber Car Co., York, Pa., advises that it is erecting upon the grounds of the York Bridge Co. a shop in which will be built electric trolley cars, known as the Barber cars. These cars are planned to be a radical departure from the present type of street cars. The new building will be approximately 50 x 125 feet and will be equipped with the most modern wood working machinery required for the purpose. All metal work for the present will be done by the York Bridge Co., which has full facilities for doing this sort of work. It is intended to develop the car business as far as possible, future plans, of course, depending entirely upon the favor with which the newly planned cars are received.

REBUILD PLANT.

Keystone Steel Co., Wilmington, Del., to Pay Special Attention to Floor Plates.

The Keystone Steel Co., Wilmington, Del., which was recently organized to purchase the Wilmington Rolling Mills, formerly operated by the Seidel & Hastings Co., as noted in THE IRON TRADE REVIEW July 23, is making extensive improvements to the plant, whch occupies about four acres of ground in that city. The plate mills are being rebuilt and remodeled and a 90-inch plate mill is being added. When this work is completed, the company will have 90-inch, 80-inch, 54-inch and 48-inch plate and sheet mills. After these improvements are completed a bar mill will be added. The charcoal iron forge department will also be remodeled and put in an economical working condition.

The Keystone company will manufacture special plates, paying particular attention to the Keystone wrought steel floor plates, ribbed, diamond and checkered patterns, the president of the company having been engaged in the manufacture of this product for a number of years. In this department special machinery has been installed. The new company will also continue the manufacture of knobbled hammered charcoal iron blooms and plates by the same process and with the same workmen employed by the Seidel & Hastings Co. The bar mill will be devoted to special concrete bars, both twisted and plain, and special shapes.

The stockholders of the new company are almost identical with those of the Rogers-Shear Co., special bar and shape manufacturers of Warren, Pa., with which it is closely allied.

Will Install Gayley Process. — Among the improvements to be made by the Northwestern Iron Co., Milwaukee, at its furnaces and mines at Mayville, Wis., is the installation of the Gayley process for removing moisture from air entering the blast furnaces. The contract for this plant has been awarded to the Vilter Mfg. Co. of Milwaukee, which company installed a similar plant in the Bay View works of the Illinois Steel Co. last winter.

Plant Taken Over.—The Lycoming Foundry & Machine Co., Williamsport, Pa., has taken over the entire plant and equipment of the Demorest Mfg. Co. and in addition to carrying on the business of the old company has added a large amount of new equipment and will make a specialty of special light machinery of all descriptions. In addition to a large and well equipped metal and wood pattern shop, foundry and machine shop the company has a japanning and nickeling department. Within a short time the company will turn out a complete line of gasoline motor boat engines. The new officers are: President, R. L. Ahles; secretary-treasurer, J. H. McCormick; general superintendent, S. P. Jackson.

MORE CHEERFUL FEELING

Among Machine Tool Makers of Cincinnati—News Notes.

Inquiry among the machine tool builders the past week has been productive of information of a more cheerful nature than for some time. A number of shops have received nice orders and some that have been idle have resumed operations. There is more inquiry than for months and several propositions from railroads are under consideration. While all of the shops have not been favored with orders, the volume of business is so much better that it is a matter of encouragement in the trade.

The strike at the Newport Rolling Mill, which occurred last Wednesday, was of short duration and the men returned to work on Monday under a settlement satisfactory to the officers of the mill and the men.

The Wessling Bros. Foundry Co. was incorporated this week with a capital of $30,000 and will begin business in the old Weber foundry plant which was recently purchased for that purpose. The Wessling brothers, A. G. & J. H., were formerly in the foundry business. The other incorporators and stockholders are: Chas. Kruse, president, and George W. Kleinschmidt, treasurer of the Kruse Hardware Co., and C. H. Stephens. It is the intention to put the plant in order as soon as possible and begin business.

The molders' strike, which has been nominally on for about four years in the foundry of the I. & E. Greenwald Co., has been declared off, and the plant is now being run as an open shop and not recognized as a struck shop.

The American Steel Foundries has applied to the New York stock exchange to list $11,555,100 capital stock.

TAUNTON STEEL WORKS

Taken Over by Spencer Wire Co.—Much Rebuilding in New England.

Worcester, Mass., Aug. 3.—The Spencer Wire Co., with plants in Worcester and Spencer, has announced through its president and treasurer, H. W. Goddard, that it has taken over the Taunton Steel Co., Taunton, Mass., with all its machinery and special processes for the manufacture of high speed drill rods and other high carbon untempered steel wires of every kind. The machinery has already been incorporated into the works of the Worcester plant and the Taunton office closed, most of the Taunton workmen removing to Worcester. The new addition will be known as the Taunton Steel Co. division of Spencer Wire Co., Worcester. On account of this purchase, no immediate changes in the Worcester works are contemplated, and no increase of capital stock is considered; but the Spencer Wire Co. is building a new office building, of wood and limestone, with granite entrance, size 42 by 60 feet, two stories.

There is a probability of the National Scale Co., now located at Beaver Falls, Pa., removing to Chicopee, Mass. The company has been making counting machines and computing scales, under basic patents, the past four years, and its lease about expiring, is considering moving into some eastern city, where it finds the most productive market for its output. Its moving to Chicopee is contingent on the Chicopee people subscribing $25,000 to its capital stock, which amounts to $150,000, and the balance being now paid in. The company would reincorporate under Massachusetts laws, and a committee from Chicopee would first thoroughly investigate the accounts and business of the scale company to see if (as it is expected) it would be a desirable addition to the industries of Chicopee. Mr. Page, of the J. Stevens Arms & Tool Co., Chicopee, is the moving spirit in getting the scale people to come to Chicopee.

Franklin S. Beckley and George W. Corbin have retired from the board of directors of the Humason & Beckley Mfg. Co., New Britain, Conn., manufacturer of cutlery. They have disposed of their interests in the concern and their places on the board of directors have been taken by W. H. DeWolf and Frank G. Vibberts.

The buildings of the old Arnold & Pierce foundry on Hammond street are to be sold at auction and removed, part of the plan for the abolishment of grade crossings in Worcester. The foundry was started in 1882 and did a good business for a number of years. It stopped business in 1904.

The big addition to the works of the Crompton & Knowles Loom Works is being pushed along rapidly. The old stone mill, formerly occupied by the now extinct Forehand Arms Co., has been entirely razed and in its place will rise the new foundry of the loom company.

New Foundry Company.—Application for a charter was filed July 30 by the Iron City Foundry Co., of Lebanon, Pa., the incorporators being well known business men of that place. W. O. Steele, formerly with the Buchanan Foundry Co. is the leading projector in the enterprise, besides being president and general manager of the company. It is planned by the new organization to take over the Ream foundry plant at Seventh and Willow streets, recently built by Harvey Ream and others. The plant is being enlarged and improved and it is expected that operations will begin early in August. The Iron City company will manufacture washers, special washers, separators and a general line of hard iron castings.

Milwaukee Plant Resumes.—Theodore Vilter, president of the Vilter Mfg. Co., of Milwaukee, announces that several large contracts for machinery have just been closed and the company has been compelled to resume work in all departments. Inside of two weeks, said Mr. Vilter, it will be necessary to put on the night gang, which was laid off in February. Among the new contracts for refrigerating machinery are these: For Kansas Ice Co., two 60-ton ice making plants, for Clovis, Kans., and Waynoka, Okla.; Cudahy Bros. Co., Milwaukee; Northwestern Iron Co., Milwaukee.

At a meeting of creditors of the Middletown Car Works of Middletown, Pa., held in New York, July 30, it was decided to continue the affairs of the company in the hands of the creditors' committee. This committee is composed of Jas. Lord, of Lebanon, F. G. Kennedy, A. G. Wellington; F. J. Hall, Harrisburg, E. M. Grove, F. M. Campbell, Pittsburg; C. E. McInnis, Buffalo and Ernest Law, Philadelphia.

CONSOLIDATING SHOPS.

Wambold-Brunschweiler Co. Takes Over Screen Plate Concern.

The Wambold-Brunschweiler Co., Milwaukee, has leased a site at the corner of Thirty-first street and Lisbon avenue, on which will be erected a machine shop and foundry. The machine shop will be two stories 48 x 90 feet and the foundry one story 30 x 96 feet. It is estimated that the buildings will cost from $10,000 to $12,000.

The Wambold-Brunschweiler Co. was incorporated in November, 1906, to take over the business of H. E. Wambold. It now takes over the business of the Appleton Screen Plate Co., of Appleton, Wis., which also has been operated by Mr. Wambold. The Appleton plant is to be moved to Milwaukee and consolidated with the jobbing brass foundry which the company is now operating in the latter city. Up to this time the company has been operating a jobbing brass foundry only in Milwaukee, doing no finishing whatever, while the Appleton plant makes a specialty of screen plates and dandy rolls for paper mills, and operates a machine shop in connection with the foundry. Mr. Wambold has operated the plant at Appleton for over 16 years, and Geo. W. Brunschweiler, secretary and manager, has been connected with the business for about a year and a half. The product of the Wambold-Brunschweiler Co. will be bronze, brass and aluminum castings of every description.

Machine Builders Convention.—The regular annual convention of the National Machine Tool Builders' Association will take place this year at New York City, on Tuesday and Wednesday, Oct. 20 and 21. The association will have its headquarters at the Hotel Imperial, corner Broadway and Thirty-second street.

The Vulcan Iron Works, Wilkesbarre, Pa., is erecting a new machine shop 75 x 20 feet at its West Pittston, Pa., plant. It is of steel and brick construction with concrete floor, It will be electrically driven throughout, the large machines having individual motors and the smaller machines from a central station. Westinghouse equipment and Sellers' cranes are used.

The McKeefrey stack of the Salem Iron Co. blew out July 3

The Norton Iron Works blew out the Ashland, Ky., stack July 12.

PERSONALS.

Mark Lacey, Jefferson, Wis., has been appointed a traveling salesman for the American Steel & Wire Co.

Frank E. Meily has been elected president of the Lebanon Stove Works, Lebanon, Pa., to succeed H. H. Kreider, Annville, Pa., deceased.

Gustaf A. Blume, manager of the Vesteras Foundries of the General Electric Co., of Sweden, Vesteras, is in this country on a short business trip.

A. C. Moore, general manager of the Seamless Tube Co. of America, at Monessen, Pa., has been elected to the same position with the recently organized Shelby Tube Co.

Robert Field has severed his connection with the Dumhoff & Joyce Co. of Cincinnati and has gone into business under the name of Robert Field Iron & Coke Agency with offices in the Traction building, Cincinnati.

N. P. Withington, sales manager for the DeCamp Bros. & Yule Iron, Coal & Coke Co., left St. Louis Tuesday evening to spend about four weeks among the pig iron men in the east. He will visit Cleveland, New York and Philadelphia, making the trip to New Orleans by ocean from New York.

Edward H. Llewellyn, secretary of the Chicago Malleable Iron Co., who has been traveling in Europe for recreation since early April, was taken seriously ill in Paris. He was removed to London in the care of a physician friend but the possibility of bringing him farther on his homeward trip in his present condition is not yet determined.

Prof. Forest E. Cardullo has accepted the chair of mechanical engineering at the New Hampshire State College. Prof. Cardullo held the chair of practical mechanics at Syracuse Unversity and made a brilliant record up to last June, when he was obliged by Chancellor Day to resign on account of his earnest support of Dean Kent in the latter's controversy with the chancellor over the safety of the university buildings.

W. E. Farrell has resigned his position as general manager of M. H. Treadwell & Co. of Pennsylvania, Lebanon, Pa., while retaining the vice presidency of the company, and has been chosen president of the Stoever Foundry & Mfg. Co., Myerstown, Pa., of which he is also general manager. Paul W. Webster, formerly with the Variety Iron & Steel Works Co., Cleveland, and for the past eighteen months assistant manager of Treadwell & Company, has been elected general manager of Treadwell & Co. Ralph McCarty has severed all connections with the Stoever company, and will devote his time to other interests.

OBITUARIES.

Cyrus Winslow Merrell, for twenty years secretary of the Commonwealth Iron Co., died July 21 at his home in Cleveland. His entire business career was spent in the service of the Commonwealth company, and he was well known in the iron trade.

Captain David Z. Brickell, aged 83, who had spent a long and active business career about Pittsburg, died in that city July 29. In 1865 Capt. Brickell and others purchased the Kittaning rolling mill and operated it under the name of Martin, Oliver & Brickell, until the mill was destroyed by fire several years later.

William F. Thatcher of Florence, N. J., general manager of the Florence, N. J. pipe works of R. D. Wood & Co., died unexpectedly July 24, at his cottage at Seaside Park, N. J. For thirty-four years he was in charge of the Wood plant and was also president of the Florence Thread Co. At the funeral July 27, at Burlington, N. J., each of the 1,200 employees of Wood & Co., dropped a white carnation upon the grave of their general manager.

FURNACE OFFICERS CHOSEN.

The stockholders of the Hamilton Iron & Steel Co., Hamilton, O., held their annual meeting several days ago in the offices of the company, 1632 Union Trust building, Cincinnati, when these officers and directors were elected: President, Geo. L. Pearson; vice president, Edwin N. Ohl; secretary-treasurer, R. E. Field; Wm. R. Todd, Frank F. Dinsmore, N. S. Keiph and O. B. Parrish. The statement was made that the furnace will be blown in about the middle of the month.

Coal and coke shipments over the Pennsylvania lines east of Pittsburg and Erie, for the week ending July 4, reached 760,189 tons. Since Jan. 1, shipments aggregated 22,438,598 tons, compared with 29,380,628 tons in the same period last year.

The Crucible Steel Co. of America is now occupying its new Chicago warehouse at 117-120 Washington Boulevard with a full line of stock. The former store was vacated to make room for the Chicago & Northwestern Terminal.

The structural and ornamental iron works of B. Palmer, 229 West Fiftieth stret, New York City, which were seriously damaged by fire July 20, are now operating again. The loss was chiefly confined to stock on hand.

NEW EQUIPMENT CONTRACTS.

The Vulcan Iron Works, Wilkesbarre Pa., has secured a contract for six rotary kilns, 8 x 125 feet, for the new plant of the Crescent Portland Cement Co., Wampum, Pa. The Vulcan Works is also building seven pairs of hoisting engines 26 x 48 inches, equipped with conical drums for the H. C. Frick Coke Co., as well as a pair of 30 x 48-inch direct-acting hoisting engines with 9 to 11-foot conical drums for the Maryd Coal Co., Maryd, Schuylkill county, Pa., and a pair of 36 x 60-inch and a 16 x 36-inch shaft hoisting engines for the Lehigh Coal & Navigation Co., Lansford, Pa. The company reports the demand for railroad contractors' locomotives and locomotives for logging roads and sugar plantations light but gradually improving.

PACIFIC COAST TRANSFER.

The interests of Louis and Joseph Sloss in the Pacific Hardware & Steel Co., San Francisco, recently passed to the control of A. L. Scott, H. J. Morten, W. T. Smith and Hiram C. Smith, who have been associated in the company for several years. The officers of the company are: President, A. L. Scott; first vice president, H. J. Morten, and secretary, W. T. Smith. Joseph Sloss will probably retain his position as manager for some time. The company was originally incorporated in December, 1901.

The Becker Iron Works, recently incorporated with $20,000 capitalization, has purchased the business in structural, ornamental and architectural iron work formerly carried on at 318 East Forty-eighth street by H. Becker, who died a short time ago. Rudolph W. Becker is president of the new company and Leo Kresser is secretary and treasurer, both being civil engineers. The works were established by H. Becker about 10 years ago.

The Alliance Machine Co., Alliance, O., has received a telegram from the chief ordnance officer at Washington, D. C., announcing that the company has been awarded the contract for two 12-inch gun carriages for the government at $72,000 for the two carriages.

Receivers of the Pope Mfg. Co. announce that, subject to the court's approval, they have sold $300,000 par value of the capital stock of the Columbia Steel Co., which is among the assets of the Pope company. The sale will net about $190,000.

CHARLES M. SCHWAB*

Charles M. Schwab, president of the Bethlehem Steel Corporation and one of the directors of the American Iron and Steel Institute, is a native Pennsylvanian, being born at Williamsburg, near the center of the state, April 18, 1862. When he was about five years of age, his parents removed to Loretto, Pa., where he received his education in the village school and at St. Francis college and where his entire boyhood was spent. He has never lost his affection for this little mountain town, for his private car bears its name and he has erected there a magnificent Catholic church costing $150,000.

CHARLES M. SCHWAB.
Director of the American Iron and Steel Institute.

Mr. Schwab's first connection with the steel industry was in the service of the Carnegie Steel Co., which he never left until he retired from the presidency of the great corporation formed with this interest as a nucleus. He served six months' apprenticeship on the engineering corps at the Edgar Thomson works, and then became their superintendent. After the bitter labor struggle at the Homestead plant, he assumed the superintendency there as well, and, in the face of seemingly insurmountable difficulties, speedily restored the works to their former efficiency. At the age of 30, as superintendent of the two plants, Mr. Schwab was in charge of about 8,000 workmen.

It was his remarkable success in the management of these works which, a few years later, placed Mr. Schwab at the head of the Carnegie Steel Co., and his accomplishments in this larger position which gave him the first presidency of the United States Steel Corporation, in the organization of which he was one of the foremost figures. When he retired, in 1903, he remained inactive for a short time and then secured control of the Bethlehem interests, with the upbuilding of which he has since been identified. The improvements there made in carrying out his elaborate program of extensions have recently been described in THE IRON TRADE REVIEW. The new structural sections, a product of the recently completed Grey mill, are already proving an important factor in the building trade. By reason of recent improvements and additions, the works at Bethlehem have taken a place among the most complete and best equipped steel plants of the country. Stretching along the narrow Lehigh Valley for two miles, they provide extensive capacity for the manufacture of finished steel in its various commercial forms, armor plate, railway supplies, forgings, special steels and a variety of other products. In addition to the works at South Bethlehem, extensive ship-building interests are operated by the Bethlehem Steel Corporation on both the Atlantic and Pacific coasts, where adequate facilities exist for the construction of the largest battleships.

Mr. Schwab's prominence in the steel industry, both by reason of his long connection with the Carnegie interests and the Corporation and because of his present holdings, has naturally rendered him a prominent figure in the organization of the American Iron and Steel Institute. He was an active participant, throughout the depression period now closing, in the co-operative movement for the restoration of activities, being a member of the general committee and chairman of the sub-committee on structural materials. His interests outside of those relating to iron and steel manufacture are important.

*Eighth of a series of brief biographical sketches of officers and directors of the American Iron and Steel Institute. The others of the series have been: Elbert H. Gary, April 16; Willis L. King, April 23; John A. Topping, May 7; Wm. A. Rogers, May 14; E. A. S. Clarke, May 21; Thos. J. Drummond, June 4; and Samuel Mather, July 9.

Various manufacturing interests of western Pennsylvania are planning to take space in Machinery hall of the Pittsburg Exposition, which will open Sept. 22. Among the companies to be represented are the Pittsburg Steel Co., the National Tube Co., the Westinghouse Mfg. & Elect. Co., the Western Electric Co., and the Carnegie Steel Co.

The new modern blast furnace erected for the Brier Hill Iron & Coal Co. on the site of the old Grace stack, Youngstown, O., is nearing completion. The stack was erected by the Wm. B. Pollock Co. and the blowing engines were built by the Wm. Tod Co., both of Youngstown.

GRAY HEMATITES OF EASTERN ALABAMA.

By Edwin C. Eckel.*

During the past few years, considerable local attention has been attracted by the development work which was in progress in the gray hematite ranges in Talladega county, Ala. Until this work had resulted in fairly definite results, however, it was inadvisable to publish any detailed description of the new ore field, and for this reason very little accurate information concerning it has been obtainable by the iron trade in general. As the prospecting work has been substantially completed, and part of the district has reached the shipping stage, the present statement has been prepared to cover the more important facts relative to these deposits. It is based primarily upon the results of the writer's work in the district, though, as later noted, access was had to all previous reports and data.

Location of the Gray Ore Field.

The gray hematites of Alabama occur in several counties in the eastern and northeastern portions of the state. At present practically all of the development work has been confined to Talladega county, and the only large workable ore bodies now known to exist are located in that county. Samples of float ore have, however, been received from several other counties located along the Alabama-Georgia state line, and the existence of gray hematite deposits has been reported from adjoining regions. So far, however, none of these reports has amounted to anything when traced down, the ores being unworkable because of thinnness of grade.

As our present information stands, the workable gray ore deposits may be described as being confined to a long but narrow area in Talladega county, Ala., extending from near the town of Talladega southwestwardly to near Sylacauga. The entire area is about 20 miles long, from northeast to southwest, and about two miles wide. All of this area, however, is not occupied by the ore bearing series of rocks, for the ore deposits occur in several still narrower belts within the area above outlined.

History and Development of the Ranges.

The existence of the gray ores in this district has been known for many years, ores of related type having been described in 1858 by Dr. Tuomey, then state geologist of Alabama. In the early seventies Dr. Eugene A. Smith, the present state geologist, gave more detailed descriptions of many of the gray ore localities. It is only within the past three years, however, that active development work has been undertaken in this promising range. Though much prospecting has been carried on by individuals, the serious attempts at exploitation are due entirely to two companies, which together control the bulk of the workable ores of the field. Of these companies, the Gray Ore Iron Co., which is closely related to the Shelby Iron Co., has now two mines which were operated in 1906 and 1907. The other, the Alabama Ore & Iron Co., has completed extensive prospecting work and is now ready to commence mining.

The present writer had examined a portion of this field casually in 1906 while still in charge of the iron ore investigations of the United States Geological Survey. In the latter part of 1907, having resigned from the survey, he was employed in examining the developments on the property of the Alabama Ore & Iron Co., with the purpose of advising as to the future development and handling of that property. Early in 1908 he examined and reported on the mines and other property of the Gray Ore Iron Co. In the course of this work ample opportunity was of course afforded for the study of the results attained in the mining and prospecting, and for comparison with data gathered by other engineers. As there now seems to be no necessity for concealing the results of these developments, the officials of both companies have kindly permitted the use of these data in the preparation of the present summary.

Geology of the District.

The ore bearing rocks form a series of low hills extending from Talladega southwest to Sylacauga, and bordered on each flank by limestone valleys. Both of these valleys are traversed by railroads, the one east of the ore range being followed by the Louisville & Nashville, while that on the west is followed by the Southern railway. The ore ranges are separated by faults from the limestone series on their flanks, and the ore beds outcrop at elevations of 100 to 300 feet above the levels of of the limestone valleys. Large streams follow the valleys, and cut across the ore range at intervals. The questions of transportation and water supply are therefor greatly simplified through the geological conditions of the region.

The rocks with which the ores are associated are a series of considerably metamorphosed slates, quartzites and marbles. Their exact geological age is still a matter of discussion, but is either late pre-Cambrian or early Cambrian. The determination of the exact age of these rocks is not a matter of immediate importance, and must be held open for discussion until detailed geologic work has been carried out in areas to the north of the ore ranges. The matter is referred to here simply because some local investigators have considered that the gray ores were simply metamorphosed Clinton red ores. Such a conclusion is untenable, for the two ores differ greatly in age, origin and character.

Structurally, the ore ridges consist of a series of very sharply folded rocks. Toward the northern part of the range, a section across it shows that the rocks have been folded into a closely pressed anticline, and so overturned as to give dips to the southeast on both flanks of this fold. Further south, near the Emauhee mine, only one flank of the fold appears, but near the Talasahatchee workings a series of sharp overturned folds is again encountered. The dips are, as above noted, always in a southeast direction, but they vary greatly in amount. On Heacock mountain the ore beds dip almost vertically in places, while further south the dip flattens to 35 degrees or thereabout.

The ore bearing ridges are bounded on east and west by large faults, but no faults of importance have been found in the ore series itself. On Riser mountain the great thickness of the ore beds at some points appears to indicate the presence of numerous faults of small throw, but elsewhere even these minor faults are rare or entirely lacking.

Form and Origin of the Ore Deposits.

The ores occur in the form of vertical or highly inclined beds, remarkably continuous along the strike. They appear to have originated by the replacement of pre-existing beds of porous and possibly limey sandstone and shales. This replacement took place at an early date, geologically speaking, so that the location of the ore deposits bears no necessary relation to the present topography of the region.

The point of greatest practical im-

*Munsey building, Washington, D. C.,

portance connected with the method of origin of the ores is its effect upon the question of the depth to which the deposits may be expected to extend. Having originated by replacement, it may reasonably be expected that at some depth below the present surface the ores will disappear entirely. There is, however, no reason to believe that this will take place except at a depth which, for our present purposes, may be disregarded. The deepest slopes in the district are now down 350 feet or more, and at this depth the ore beds maintain the same thickness and grade that they show on the surface. The remarkable continuity of the deposits along the strike is another fact of interest, individual deposits being traceable for several miles along the outcrop. If the deposits had originated by deposition from the present surface, their extent along the strike would of course be poor evidence as to their persistence in depth, but as the ore deposition is much older than the topography the extension of the ore in one direction may be expected to give some hint as to its extension in another. In the writer's opinion the evidence of existing workings, the extent of the beds along the strike, and their regularity in composition and thickness all combine to justify the belief that the deposits will remain workable and of substantially the same grade and thickness as at the outcrop for a depth of several thousand feet. In fact it seems much more probable that a deep incline would run out of ore because it would pass beyond the faults bounding the ore ridges than because it would penetrate to a zone where the ore had never been deposited. In the tonnage estimates given later in this article, the workable depth of the deposits is assumed as 1,500 feet, and it is believed that this assumption is entirely justified.

Character and Grade of the Ores.

For a long time after their discovery these ores were commonly spoken of as magnetites, this assumption being apparently based merely on their color and geologic associations. Careful determinations by Dr. Philip Smith prove, however, that ordinarily magnetite is either entirely lacking or very rare in this district, and that by far the bulk of the ore as mined is hematite.

The typical ore of the region is a bright gray on a fresh surface, often with a cross-fracture like that of a fine-grained gray pig iron. On weathering, the ore becomes a lighter gray, but, when cut or scratched, it shows the typical blood-red powder of hematite. In places the thin films of slate passing through the ore give it a slightly greenish tinge, but this is of course noticeable only in the ores of lower grade carrying much interbedded slate.

Aside from iron oxide, the main constituent of the ore is silica, in the form of fine grains of quartz. The ores are eminently siliceous, as compared with the calcareous red ores of the Birmingham district. Their average range in composition is between the following limits:

Metallic iron	53%	to	45%
Manganese	0.1	to	0.5
Sulphur	0.007	to	0.4
Phosphorus	0.15	to	0.29
Silica	15.00	to	26.00
Alumina	2.00	to	4.00
Lime	0.20	to	1.50

It will be seen that in composition the gray ores resemble more closely the brown hematites than the red or Clinton ores. So far as iron and silica percentages are concerned, the Alabama gray ores are far superior to the Oriskany hematites which have been so long used in Virginia at Longdale, Lowmoor, Goshen, Glen Wilton, Iron Gate and Covington furnaces. There would seem to be no reason, therefor, why the Alabama gray hematites should not find place in the trade, either for use in a mixture with the limey red ores or for smelting alone. When operations are conducted on a reasonably large scale, the gray ore can be mined and cleaned for $1.10 to $1.25 per ton, equivalent to two to three cents per unit of contained iron.

Probable Tonnage in the Gray Ore Ranges.

It is of course impossible to make any very close estimate as to the reserve ore tonnage in the gray ore ranges, but sufficient work has been done to give an estimate of reasonable probability. Part of the district is now mining, another portion has been explored quite closely, while a third portion is barely prospected. Taking only the better known portion of the range, it is probable that in this 10-mile section there are somewhat over fifty million tons of ore at easily workable depths, i. e., above the 1,500 foot level. About half of this total tonnage will grade above 45 per cent metallic iron, the remainder ranging from 45 down to 35 per cent. A fair proportion of the total, say five million tons, can probably be mined so as to grade 50 to 53 per cent iron.

The portions of the range which are still but slightly prospected may increase these totals somewhat, but it seems highly improbable that this increase will amount to more than 25 per cent at the outside. Though traces of the ore are found at widely scattered points, the workable deposits seem to be quite closely grouped. Even without new discoveries, however, the range as already developed has made an appreciable addition to the ore reserves of Alabama, while its ore is of a character which happens to be more serviceable in Alabama than elsewhere.

Furnace Utilization of the Gray Ores.

Trial shipments of gray hematite have been made to a number of Alabama furnaces, and the results have been uniformly satisfactory. In addition to these smaller tests, the ores have been used for considerable periods of time at three furnaces—Gadsden, Ironaton and Shelby. Regarding the results of this use of the ore the following quotations from a letter from M. W. Bush, who was in charge of some of these operations, is of interest:

"I worked the gray ores of Talladega county for about three years with uniformly satisfactory results. The ore was first put in the furnace mixture as a substitute for brown ore. I found that it not only gave the same results, but made the mixture I was then using very much more fluid. The relative quantities of silica and alumina in the gray ore are such that it is very helpful in any ore mixture that is high in alumina. By using this ore in one furnace where the pressure was very high on account of high alumina, I succeeded in reducing the pressure about 3 pounds and thus made the furnace drive very much easier. The gray ore had also some advantages over the brown, in that it was so much more uniform. This is quite a consideration in this district where all the furnace stock varies more or less, and the brown ores vary a great deal."

Other furnace managers who have used these gray ores report practically the same results, laying stress on the increased fluidity and on the advantages as a mixture with high-alumina ores.

A certain amount of criticism has been directed against the gray ores because of the excessively high percentages of potash which they are supposed to carry. Apparently this criticism is entirely without foundation for, so far as can be determined, the alkali percentages in the gray hematites are not larger than those found in many other well-

known and long-used American ores. Data on this subject are presented in the table following. So few analyses are on record in which the analyst has determined the alkali contents of the ores that those quoted below are taken from the results of the tenth census investigation of iron ores. The sampling done for this work was very careful, and as the analytical work was carried out by such chemists as Blair, Whitfield, Gooch and King, the results are beyond question. The last analysis in the table is of a composite sample of gray ore, made up from a large series of individual samples.

Alkali Contents of American Iron Ores.

Locality.	Kind of Ore.	Potash.	Soda.	Total Alkali.
Salisbury, Conn.	Brown hematite	0.70	0.44	1.14
Quinnisec Mine, Mich.	Hematite	0.99	0.02	1.01
Cornell Mine, Mich.	Hematite	1.54	0.17	1.71
Cornell Mine, Mich.	Hematite	2.29	0.30	2.59
Keystone Mine, Mich.	Magnetite	0.92	0.86	1.78
Beattystown, N. J.	Brown hematite	1.47	0.10	1.57
Amenia, N. Y.	Brown hematite	1.13	0.34	1.47
Wolf Creek, Tenn.	Hematite	1.80	0.17	1.97
Riverville, Va.	Magnetite	0.99	0.14	1.13
Emanhee, Ala.	Gray hematite	1.39	0.45	1.84

So far as can be learned the only effect of the alkalis, when present in such quantities as above indicated, is to increase the readiness with which the ore fluxes. In this connection it may be noted that there is a general opinion, among furnacemen who have used the Alabama gray ore, that it fluxes more readily than any other ore obtainable in the state.

MINERAL PRODUCTION OF MISSOURI.

Secretary Marsteller, of the Missouri State Bureau of Mines and Mining at Jefferson City, has just completed a tabulation showing the tonnage and value of Missouri's minerals for 1907, and a summary thereof, comparing the output with that of 1906. The total value of the 1906 output was $26,750,651, as against $26,748,372 for 1907, a net decrease in the latter year of $2,279. The lead, zinc and iron ore each showed a falling off in production and an aggregate decrease in value of $1,115,747. The other minerals, however, made an increase in value in 1907 over 1906 of $1,113,468, making the net decrease as stated, $2,279.

The report states in part as follows: "This is a most gratifying statement as a whole, in view of the monetary conditions of the country during 1907, with its attendant demoralization in nearly all branches of trade. The lead ore industry suffered more severely than any of the other mining industries, and but for the increased production of this ore in Jasper county during the first nine months of the year, the showing would appear even worse than it does.

"The price offered for this ore during the last three months of 1907 declined to that extent that further operations could not be continued, and the mines which did not cease operations altogether were compelled to stock their products.

"The zinc ore industry, although suffering severely on account of panic prices and conditions, produced 1,808 tons of zinc in excess of that of 1906, but with a loss in its value of $133,091, thus clearly showing the effect of low prices.

"The coal industry makes a phenominal record showing an increased output of 465,838 tons in excess of 1906, and an increased value of $953,212.

"Copper and cobalt show increased productions, but nothing like they would have shown had business conditions been good, as the new plant at Fredericktown for the separation from lead of its bi-products of copper, nickel and cobalt, was virtually just completed when the financial troubles arose."

FOREIGN TRADE STATISTICS.

Great Britain's iron ore imports for the first half of the current year were 2,926,012 long tons, considerably over 2,000,000 tons of which came from Spain. This import movement was 973,881 tons less than in the corresponding period of 1907.

For the first five months of the year, Germany's pig iron output was 5,093,296 metric tons, a decrease of 212,561 tons, chiefly in basic.

Belgium's pig iron production, during the first five months of 1908, was 470,780 metric tons, a decrease of 121,500 tons as compared with the same period of the preceding year.

The work of rebuilding the plant of the Standard Chain Works, at Sarnia, Ont., which was recently blown down in a heavy wind storm, has been delayed by the non-arrival of building material.

SHOP MANAGERS' CLUB

Is Formed in Cleveland Among Superintendents and Foremen.

The superintendents and foremen of the metal manufacturing establishments of Cleveland have formed themselves into a club for the purposes of promoting a more intimate and social relationship among themselves, and for educating its members in technical and shop matters. Any person qualifying as a superintendent, assistant superintendent, or foreman over a department in a metal manufacturing establishment is eligible to membership. Meetings are held monthly and the dues are placed at $6 per year. The Cleveland club has begun with a membership of 75 superintendents and foremen, and the number is steadily increasing. The prospectus of the club points out that in the future they will have smokers, an occasional outing in which the ladies can participate with the members, a banquet now and then, and, in fact, anything and everything to promote the interests of the superintendents, foremen and employers.

The officers of the Cleveland club are: President, J. H. Francis, superintendent of the Kilby Mfg. Co.; vice president, D. L. Larimer, superintendent of the Cleveland Punch & Shear Works Co.; treasurer, C. P. Dole, superintendent of the C. O. Bartlett & Snow Co.; secretary, P. H. Frankel. Executive board: The president, vice president and treasurer, together with L. W. Bosley, superintendent of the Cleveland Hardware Co.; J. H. White, superintendent of the Baker Motor Vehicle Co.; F. W. Sebelin, foreman of the Cleveland Twist Drill Co.; John N. Mortimer, superintendent of the Central Brass Mfg. Co. The membership committee: J. H. Dore, chairman, superintendent of the Variety Iron & Steel Works Co.; Geo. J. Frater, foreman of the Hart Mfg. Co.; Burt S. Blossom, foreman of the Foote-Burt Co.; Geo. A. Weisman, superintendent of the American Machine & Mfg. Co.; Emil Gairing, foreman of the Rauch & Lang Carriage Co.

The Janesville Barb Wire Co., Janesville, Wis., has been increasing its working force, so that in the fence department the full force is working, but this is not true of the nail and wire departments. The work on its new building is going steadily ahead, the foundation on the south side and the walls on the other sides being completed.

STEADY IMPROVEMENT,

Which Is Believed Permanent, Is Evidenced by Milwaukee Factories.

Milwaukee, Wis., July 29.—The improvement that has recently taken place in the Milwaukee iron and steel industry seems to be permanent and increasing. Although the present season is generally regarded as rather dull, manufacturing plants are daily reporting an increase in business and are evidencing the fact by enlarging their working forces and expanding their schedules.

Regents of the University of Wisconsin have decided to install a 2,000-horsepower Crawley heater in the new central heating plant that is being erected at the university. The Crawley heater is manufactured by the Manthey-Sieker Co., Milwaukee. Several Crawley heaters have been shipped to points in the west during the last few weeks.

Jacobson & DeGuere, engineers at Grand Rapids, Wis., have been awarded the contract for preparing plans and specifications for the erection of a $500,000 plant for the Menominee-Marinette Light & Traction Co., Menominee, Mich. Plans and specifications will call for a 7,000-horsepower hydro-electric power plant to be located at Grand rapids on the Menominee river, 18 miles north of Menominee. The plant will furnish power for the light and traction business of Menominee and Marinette.

While clearing land near Antigo, Wis., workmen recently discovered evidences of a rich deposit of iron ore. The state department of geology is now investigating the matter and mining engineers declare that the district is filled with genuine ore deposits.

The Structural Steel Manufacturing Club, composed of steel manufacturers in Wisconsin, Illinois and Indiana, was recently entertained in Milwaukee by the officers of the Wisconsin Bridge & Iron Co. and the Worden-Allen Co. A luncheon was given the visiting manufacturers at the Milwaukee Country Club and a dinner at the Deutscher Club. The party included Andrews Allen, W. H. Pratt, E. E. Elcock, H. E. Horton, M. R. Vandercloot, W. H. Bennett, C. Brooks, Edward Capuuch, F. E. Cates, of Chicago; Julius Floto, Indianapolis; W. E. Reed, Beverly Worden, A. C. Bell, William Kinsella and Eugene Krueger, Milwaukee. Periodical visits are made by the club from one section to another for an inspection of different plants.

New courses are to be added to the Stout Training School at Menominee, Wis., founded by Senator J. H. Stout. In September, four new courses will be offered, consisting of machine shop work, forging, drafting and plumbing. The latter course has been made especially strong by arrangements with the practical school of plumbing and heating at Minneapolis for the removal of that school to Menominee as a part of the Stout institute. Prof. H. W. Jimerson, director of the former school, will have charge of the new department.

The city council at Manitowoc, Wis., has decided to vacate South Seventh street, between Franklin and Quay strets, in that city, to allow the enlargement of the plant of the Manitowoc Steam Boiler Works Co. In return, the boiler company agrees to give an alley to the city, lay sewerage and gas pipes and to give a bond to the city protecting it against any loss by reason of the vacation of the street.

The Vollrath Mfg. Co.'s plant, Sheboygan, Wis., has been closed for some time allowing inventory to be taken and repairs to be made. Part of the force has been put to work and the plant is expected to be in full operation soon.

TO MANUFACTURE GAGES.

The property of the Van Choate Electric Co., Foxboro, Mass., has been conveyed to the Industrial Instrument Co., Waterbury, Conn. The buildings cover 10 acres of land, are of brick and include factory, electrical, gas and other structures, which originally cost between $450,000 and $500,000. The Industrial Instrument Co. plans to occupy the premises at once, and engage in the manufacture of steam gages, thermometers and recording instruments.

Pacific Plant Planned.—J. T. Shadforth, who has been on the Pacific coast for over a year investigating the local iron situation, announces the organization of the Northern Iron & Steel Corporation with headquarters at Victoria, British Columbia. This company plans to commence construction before the end of the year on a plant which will include a 200-ton coke blast furnace, a 37-oven coke plant, five 40-ton basic open-hearth steel furnaces and a rail mill, representing a total investment of $1,400,000.

CHAIN MAKERS' WAGES

Have Been Satisfactorily Determined, Say Columbus Officials.

Columbus, O., July 29.—Officials of the chain manufacturing companies of Columbus say that the negotiations with their employers over the wage scale are practically concluded, satisfactorily to both employers and the men. The new scale provides for a maximum and a minimum wage.

Owing to several large orders received by the Ohio Elevator & Machine Co., Columbus, the working time at the plant has been increased from 45 to 60 hours a week. Officials of the company expect to be able to increase the working force of the company within the next few weeks.

At the annual meeting of the stockholders of the Columbus Chain Co., of Columbus, the members of the board of directors were all re-elected and the board organized by re-electing all of the old officers. Charles Wambaugh is president of the company. The plant closed down last week for inventory and repairs but resumed operations again the first of this week.

The summer courses in machine work, forging, etc., at the Ohio State University have become so well attended that the classes are divided into sections to enable all to have an opportunity to use the anvils, benches, lathes, etc.

The Bessie furnace of the Columbus & Hocking Coal & Iron Co., at New Straitsville, which had been closed down since last winter, has blown in and is steadily turning out ferro-silicon iron.

MILLING MACHINE TRANSFER.

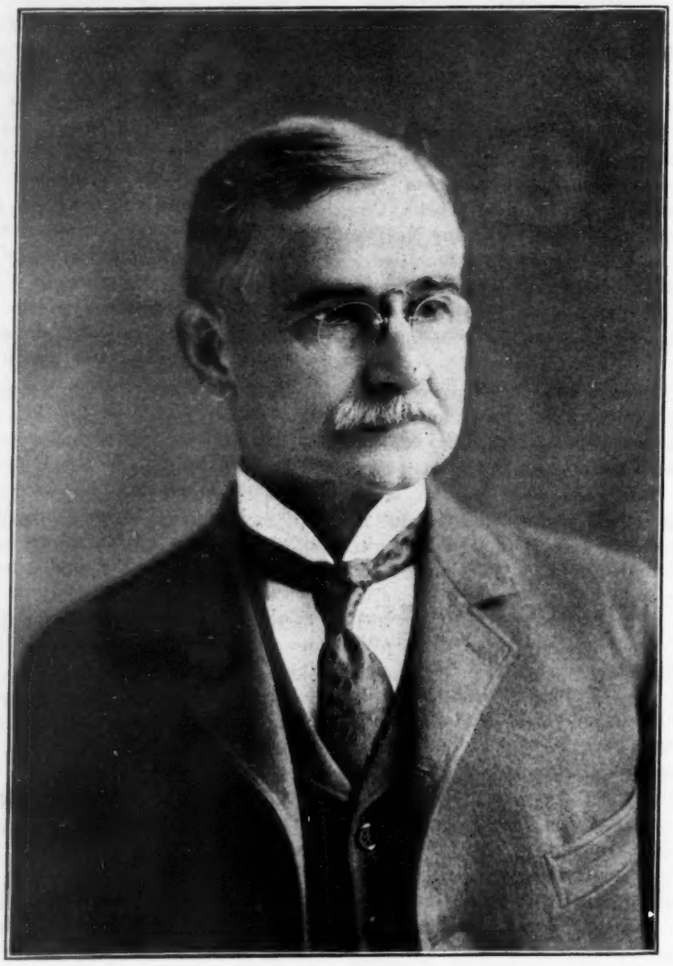
The Becker Milling Machine Co. has taken over the business of the Becker-Brainard Milling Machine Co., Hyde Park, Mass., with John Becker, formerly of the John Becker Mfg. Co., Fitchburg, Mass., as its active head and manager. Several important improvements on the vertical type of milling machines are already placed on the market by the new company and orders have been booked from the government works.

A new record in steel making at the Ensley, Ala., plant of the Tennessee Coal, Iron & Railroad Co. was made the middle of July when 109 tons of steel rails were rolled in one hour.

The Kentucky Stove Co., Louisville, Ky., has filed articles extending its existence until July, 1928.

DEATH OF HARRIS TABOR.

Harris Tabor, of the Tabor Mfg. Co., Philadelphia, inventor of the Tabor steam engine indicator, the Tabor molding machine, and many other mechanical appliances, died Wednesday, July 29, at his home at Hamilton Court, that city. Death was the result of injuries received in an automobile accident July 4, 1907. On the latter date, he was touring through New Jersey in company with his wife, when, owing to recent heavy rains and the poor condition of the highway, the automobile skidded and went over an embankment, turning turtle and pinioning Mr. Tabor beneath the machine. He was severely crushed about the chest and was confined to his bed until about Sept. 1 following, when he again assumed his duties with the Tabor Mfg. Co. His improvement was slow, however, and in March last he contracted a cold followed by complications, which, owing to his weakened condition, resulted in death.



HARRIS TABOR.

Mr. Tabor was born in Clarence, Erie county, New York, Jan. 26, 1843. As a boy he was of a studious and inventive turn of mind, and in after life those traits, together with excellent ability as an executive, marked his career. When 11 years old, he took a trip on the great lakes with his parents, and at that early age gave signs of his latent ability by making, unassisted, a toy ship from a block of wood, a stick, some pieces of string, and a handkerchief, his only tool being a pocket knife. At the age of 21, he enlisted as a private in Company F, 23rd, New York Volunteer Infantry, serving in the civil war from May 16, 1861, to May 22, 1863. His mechanical training started when he was an apprentice in the shop of his brother, Leroy Tabor Sr., at Tioga, Tioga county, Pa., where he worked for two years. From there he went with S. Payne, Troy, Bradford county, Pa., and later with B. W. Payne & Sons, Corning, New York. He next moved to Hartford, Conn., where he accepted a position as superintendent of the Hartford Steam Engine Co. He remained there for one year and then, in 1883, went to Pittsburg as superintendent of the Westinghouse Machine Co., remaining with that company about two years. Previous to this time, he had invented and placed on the market a steam engine indicator, now being manufactured by the Ashcroft Mfg. Co. This indicator for years has been regarded as one of the leading instruments of its kind and is used by all the prominent engineers of the country. Through this and other similar inventions, Mr. Tabor came to be recognized generally as an authority on steam engine practice and his name promises to be accorded a very high position in the engineering world.

It was during his services with the Westinghouse Co. that he conceived the idea of inventing a molding machine that should be operated by power. At this juncture, he associated himself with Manning, Maxwell & Moore to develop and perfect the device and the Tabor Mfg. Co. was organized for the purpose. He resigned his position with the Westinghouse Machine Co. in 1884 and opened offices in New York to bring out his throttle governor, which for a short time was manufactured by James Brady & Co., Brooklyn. At the same time, he perfected his plans for the molding machine and was having it built by B. W. Payne & Sons, Elmira, N. Y.

In 1888, Mr. Tabor put the first successful molding machine on the market. It was operated by steam power with an overhead cylinder. The building of these machines was then transferred to the Pond Tool Works, Plainfield, N. J., and continued there until the early 90's, when he reorganized the company and transferred the manufacture of the machines to Samuel L. Moore Sons Co., Elizabeth, N. J. It was here that he brought out vibrator molding and built the first machine operated by compressed air. The Tabor molding machine was introduced by him in England upon quite an extensive scale and it is now quite widely used in that country.

In 1900, Mr. Tabor sold out the greater portion of his interest in the company to Wilfred Lewis and the plant was subsequently moved to Philadelphia. He was president of the company up to that time. From 1900 to 1906, he looked after his vari-

ous interests and acted as the consulting engineer. In June, 1906, he moved to Philadelphia and took an active part in the affairs of the company up to the time of his illness.

In Mr. Tabor's death the American Society of Mechanical Engineers loses an active and enthusiastic member, for he was intimately associated with that organization and its work.

The interment took place Aug. 1 at Lebanon, Pa.

H. H. Westinghouse spoke of Mr. Tabor as follows: "He was a man of beautiful character, great inventive genius, and undoubtedly did a great deal to advance foundry practice in America. Aside from his mechanical genius, he had another and contrasted side, a highly developed artistic and literary nature rare in a man of such attainments in the engineering field."

WILL REBUILD PLANT.

The plant of the American District Steam Co., at North Tonawanda, N. Y., was damaged to the extent of about $100,000 by fire July 24. Advices from Lockport, N. Y., where the general eastern offices are located, say that all the buildings destroyed will be rebuilt as soon as possible. The company manufactures pipe and other equipment for underground heating systems.

Build Erecting Shop.—The contract for building the $250,000 erecting shop of the New York Central railroad at West Albany, N. Y., has been awarded to L. B. Milliken, of Indianapolis and Buffalo. The contractor now has a force at work tearing down the old building and excavation for the new building has been begun. The new shop will occupy about the same site as the old, which stood east of the new tank and boiler shop in the locomotive department section. The construction will be of the same style as the new tank and boiler shop and of the same height. The ultimate plans contemplate machinery and blacksmith shops to replace the old shops now in use, and equipment for the new tank and boiler shop aggregating $60,000 is now under consideration.

The Colonial Coal & Coke Co., Uniontown, Pa., has elected the following officers for the ensuing year: President, T. P. Boord; vice president, W. L. Newcomer; secretary, W. P. Wambaugh; treasurer, J. A. Waters; trustees, T. A. Boord, John Shouk, J. A. Waters, W. A. Coffman, W. P. Wambaugh and W. L. Newcomer.

SUBSIDIES RE-VOTED

By Parliament Thus Insuring Continued Buying by Canadian Railroads.

Toronto, Canada, Aug. 1,—Continued activity in railroad construction and the expenditure of large amounts on materials are assured by the very heavy appropriations of public money for railroad subsidies and guarantees made recently by the Canadian government and duly ratified by Parliament. These include re-voted subsidies, which were granted last session to 26 railways aggregating 1,678 miles and amounting to $5,371,200; and new subsidies to 44 lines covering 2,150 miles, and amounting to $6,886,400. The Canadian Northern Railway also receives a guarantee of its bonds covering 609 miles of railway amounting to $7,917,000. The subsidies are placed at the minimum on the supposition that the cost of construction does not exceed $15,000 per mile, being calculated at the rate of $3,200 per mile, but should the cost of construction exceed $15,000 the subsidy is increased on a sliding scale until $6,400 per mile is reached. Seven bridge subsidies were also granted totalling $800,000. The government will undertake the construction of the Quebec bridge, placing the work in charge of the Transcontinental Railway Commission, with a view to having it built as speedily as possible as a necessary link in the Grand Trunk Pacific Railway. The commission will entrust the drafting of plans and the oversight of construction to a board composed of the three best engineers obtainable. The government will assume the loss of the expenditure made by the Quebec Bridge Co. under the bond issue guaranteed by the government up to the time of the collapse, amounting to between five and six millions.

The first steel vessel built in Nova Scotia was launched at New Glasgow on July 15. She is a three-masted schooner with a tonnage of about 490 and was christened the "James William." The vessel was built by I. Matheson & Co., iron founders under contract for J. W. Carmichael & Co., of New Glasgow, and is intended for the lumber trade. The steel used in her construction was supplied by the Nova Scotia Steel & Coal Co.

Leading officials of the Canadian Pacific Railway announce that an important discovery of a large deposit of iron ore of good quality showing 60 per cent iron, has been made in the Lawrentian Mountains. The exact locality has not been disclosed but it is stated to be about 100 miles from Montreal and on the same range as the source of supply for the St. Maurice forges. As the output of the latter though small is of high quality, the find is regarded as of considerable consequence and the railway company is endeavoring to secure it.

BETTER VOLUME

And Tone of Inquiry Presage Improvement in Central Pennsylvania.

Harrisburg, Pa., Aug. 3.—Conditions are slowly improving among central Pennsylvania mills, and much is hoped from the inquiry which is reported at many works. An increase of working time is announced at several of the plants in the Harrisburg district and at Lebanon and Reading more men are employed.

A large part of the plant of the Reading Iron Co. is in operation and is reported as having fair prospects.

In Dauphin county the Pennsylvania Steel Works has been running in most of the departments, although the Bessemer mill is still idle. It has been shut down since November and open-hearth steel is being used for rails.

The Central Iron & Steel Co. has not increased its scale of operating but the Harrisburg Rolling Mill expects to run throughout this month. The Harrisburg Pipe & Pipe Bending Co. has been making a heavy output.

The Lackawanna company's furnaces in Lebanon county are being overhauled and are ready for operating. The Temple furnace of the Reading Iron Co., near Reading, will be blown in soon. Marshall furnace at Newport, Perry county, is also undergoing repairs.

Considerable interest has been aroused in the trade by the intention of the Worth Bros. Co. to erect a blast furnace at Coatesville. This company has been a large buyer of pig iron from eastern furnaces.

The contract for the new Barber Car Works at York has been let to the Sherwood Engineering & Construction Co.

Application has been made for a charter for the Lycoming Foundry & Machine Co. It is to operate in Williamsport.

Recent increases of stock and debt by Pennsylvania iron and steel incorporations include: Edgewater Iron Co., Lebanon, $150,000 bonds; Longmead Iron Works, Conshohocken, $175,000 bonds; Mesta Machine Co., West Homestead, $750,000 stock.

The Isthmian Canal Commission has ordered from the United States Steel Products Export Co. 200,000 tie plates for 70-pound rails at the contract price, $12,730.

SATISFACTORY REPORTS

Made to Re-elected Directors of Sheet & Tube Co. on Improvements.

The stockholders of the Youngstown Sheet & Tube Co., Youngstown, O., at a meeting held July 28, re-elected the old board of directors: H. G. Dalton and John L. Severance, of Cleveland; Geo. D. Wick, J. G. Butler Jr., H. H. Stambaugh, William Wilkoff, Robert Bentley, C. D. Hine, E. L. Ford, Richard Garlick and James A. Campbell, all of Youngstown. The directors will meet in thirty days to elect officers, but no change is contemplated in the management.

The plan of improving the wire and steel department so as to increase the capacity was approved. That the company is in good financial condition was shown by the financial statement made. Reports of progress were found satisfactory on the program of improvements costing several million dollars in the blast furnace and tube mill departments.

ENLARGED ITS BOARD.

The Halcomb Steel Co., Syracuse, N. Y., recently increased the number of its board of directors from five to seven, and chose the following members: Frederick R. Hazard, Fred W. Scott, Frank E. Wade, C. Herbert Halcomb, Horace S. Wilkinson, H. P. Dennison and Lyman C. Smith. At the next meeting of the board of directors for the election of officers, Dr. John A. Matthews will be elected to the board. Dr. Matthews recently took service with the Halcomb company, having previously been with the Crucible Steel Co. of America at the Syracuse plant.

Enlarge Coke Plant.—The stockholders of the Hostetter-Connellsville Coke Co., Pittsburg, have voted in favor of the plan to increase the indebtedness of the company by $12,000, the funds to be used in repairing and enlarging the plants of the company in the Connellsville region. Plans for the improvements have already been prepared, and the work will immediately go forward. The company does not contemplate the erection of many new ovens and the expenditure will be made making general repairs and installing new machinery.

Secures Railing Contract.—The Chester B. Albree Iron Works Co., Northside, Pittsburg, has the large contract for furnishing the railing on the Blackwell's Island bridge, New York City. One approach to the structure has already been completed, but the bridge itself and the second approach, which together are 6,300 feet in length, are yet in the process of erection. The Albree company is working on what is known as the type "C" railing which is of the ordinary lattice design, but about 6 feet high and quite heavy. Over 12,000 feet of this type of railing will be required by the contract, and this will necessitate operating the company's works at night turn for a considerable length of time. The products of the Albree company include pneumatic machinery, bridge railing, structural work and forgings.

MOVED INTO MORE COMMODIOUS QUARTERS.

Thirty-two years of growth have compelled Patterson, Gottfried & Hunter, Ltd., to remove from 146-150 Center street, New York City, to new and larger quarters in the block extending from 211-213-215 Centre street through to No. 147-149-151 Lafayette street, within a block and a half of the present location. With the increased facilities, new fixtures throughout and largely augmented stocks, Patterson, Gottfried & Hunter, Ltd., will be better able to care for their customers than ever before. The business was originally founded in 1876 by Henry T. Patterson under the firm name of H. T. Patterson, and two years later the name was changed to H. T. Patterson & Co., J. H. Conklin being admitted to the firm. After eight years under this style the firm was changed to Patterson, Jorden & Gottfried. Mr. Jorden retired two years later and the business was then incorporated under the name of Patterson, Gottfried & Hunter, Ltd. The initial stock carried included sheet brass, brass rods, machine screws, and Brown & Sharpe tools. Later a stock of machine bolts was added. Today the firm carries a large addition, including a miscellaneous line of supplies, being distributers for many large manufacturers.

The stockholders of the Colonial Steel Co. of Pittsburg have received notice of a special meeting to be held Sept. 28 to vote on a proposition to increase the capital from $1,250,000 to $2,000,000. The new stock will be preferred as to dividends and assets and will be 7 per cent cumulative. The board of directors is to be increased from five to seven.

"Stove manufacturers all over the country will be running to their full capacity from now on," said Chas. D. Prieser, vice president of the Abram Cox Stove Co., July 22, at the semi-annual meeting of the company's managers.

The Maryland Steel Co. is loading on board ship at Sparrow's Point, 10,900 tons of steel rails for the Mexican Central railroad, which will be delivered at Tampico, Mex.

TEXAS MILL COMPANY CHARTERED TO ROLL BAR IRON.

The new charter for the Texas Rolling Mill Co., which succeeded the Fort Worth Iron & Steel Co., Fort Worth, Tex., was issued July 28. The new company advises that it will put in considerable new machinery and modernize the plant so as to bring it up to an output of at least 100 tons of merchant bar iron per day. The new company will manufacture merchant bar iron, track supplies, including spikes, bolts and nuts and machine bolts and nuts, truss rods, concrete bars, cross arm braces and wrought iron washers. Attention is being especially directed in remodeling the plant to provide facilities for making prompt shipments to railroad companies, wholesale hardware trade, foundries and machine shops. Edgar Hughes is general manager of the new company.

TO MAKE GAS ENGINES.

The Hunkle Gas Engine & Mfg. Co., Lexington, Ky., recently incorporated for $50,000, organized several days ago by the election of the following officers and directors: President, L. A. Ruckno, of Louisville; vice president, S. A. Wallace, of Lexington; secretary and treasurer, John F. Bean, of Lexington; S. E. Drake, Geo. Kriegel, H. F. Muir, R. D. Ramsey, W. A. Adams, Warren Elkin, O. R. and Geo. T. Hunkle. The company has begun inquiry with a view to selecting a site for a factory in which to manufacture engines.

SHIP PLANT SOLD.

The plant and property of Neafie & Levy Ship & Engine Building Co., Philadelphia, were sold at auction for $50,000. The property is subject to a first mortgage of $277,000 and receivers' certificates amounting to $125,000 and interest. The purchaser was F. C. Sommers, a director of the First National Bank of Camden, N. J. The company went into receivers' hands about four years ago, and continued in operation at a loss until a few months ago. All the bonds and securities of the company are held by the Neafie and Levy estates.

Coke Plant Purchase.—The H. C. Frick Coke Co., Pittsburg, has purchased the Juniata coke plant near Uniontown, Pa., from the Cochran interests, and has already taken possession. The Juniata plant has been practically worked out and the purchase of it by the Frick company was for the purpose of securing an outlet for a large tract of coal held by the latter in that neighborhood. The plant is well equipped, consisting of 250 ovens, power house, and a number of miners' houses.

THE NEW VANDERBILT FURNACE OF THE BIRMINGHAM COAL & IRON CO.

A Southern Furnace Fitted with a Revolving Distributor, Auxiliary Dust Catchers and Many Devices Looking to Economical Operation

The Birmingham Coal & Iron Co., Birmingham, on May 5, blew in its new No. 2 Vanderbilt furnace at Boyles, Ala., two miles north of Birmingham. This stack is situated alongside the present No. 1 stack, which has been blown out for relining. The new furnace is one of the most modern in the south and has a number of features which distinguish it materially from other furnaces in that region.

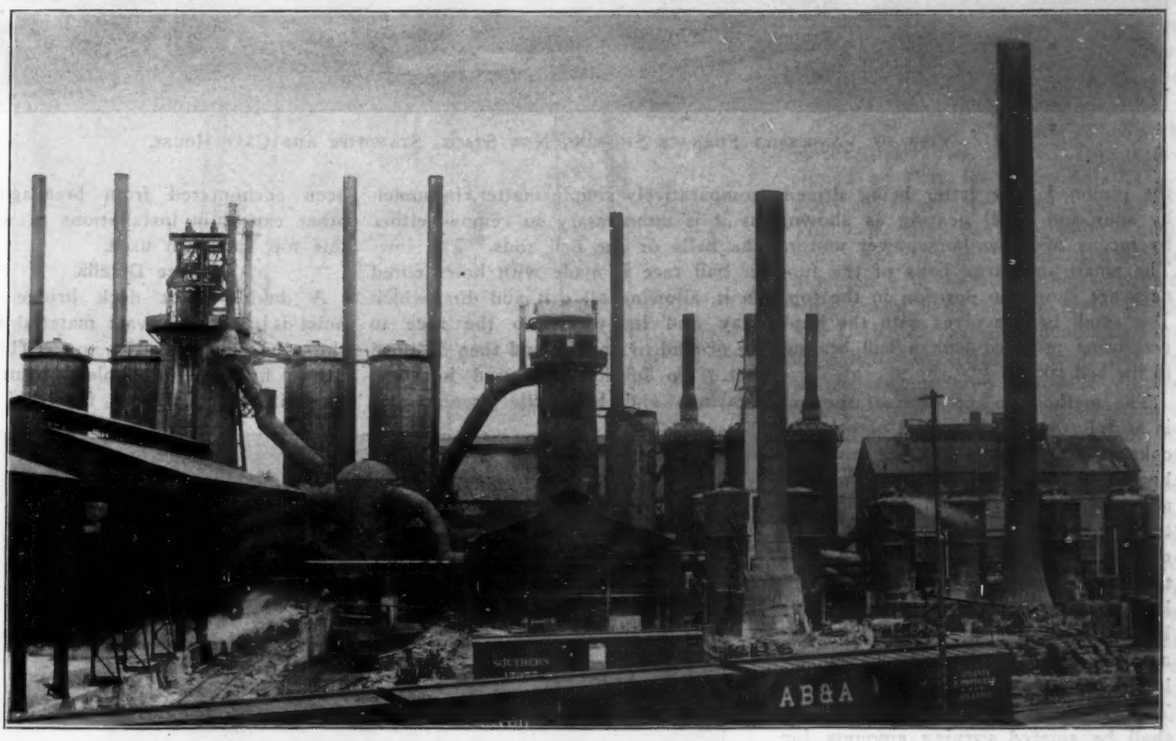


FIG. 1—GENERAL VIEW OF VANDERBILT FURNACE SHOWING OLD AND NEW STACKS.

The illustrations, Figs. 1 and 2, are general views of the furnace plant, situated alongside of Village Creek, which forms the water supply of practically all the manufacturing properties of the Birmingham district; in fact, this is the first plant to take water from the creek. As will be noted from the illustrations, the new furnace immediately adjoins the old plant, the stoves of the two being interconnected. The No. 2 stack has a much larger capacity than the old one, as can be plainly seen from the illustrations. It is designed for a nominal capacity of 300 tons per day. The illustration, Fig. 4, is a cross-section of the new furnace. It has a height from hearth to top of 80 feet, a hearth diameter of 12 feet, bosh diameter of 18 feet, and a diameter at the top immediately below the bell of 13 feet. In connection with the furnace four modified Whitwell stoves with individual draft stocks have been installed, each of a height of 85 feet and a diameter of 20 feet. Cross sections and a plan of these stoves are shown in the illustrations, Figs. 5 and 6. The main dust catcher is 18 feet 6 inches inside diameter and has a height in the cylindrical portion of 24 feet. An unusual arrangement has been provided in the installation of auxiliary dust catchers, which will be taken up in greater detail later.

The McKee Revolving Top.

The furnace is fitted with a McKee revolving distributor, which is shown in the photograph, Fig. 3, and in the drawing, Fig. 7. It is the invention of Arthur G. McKee, Cleveland, and has been installed on a number of furnaces in the south, including the Pioneer stacks of the Republic Iron & Steel Co. at Thomas, Ala. This top is the result of the difficulties first encountered when the skip hoist was adopted for charging blast furnaces. The skip hoist developed troubles due to the one-sided working of the furnace, which was the natural result of the charge being dumped at one stop at the hoist. The drawing, Fig. 7, is a cross-section of the top of this furnace under discussion. The top consists essentially of a hopper B, arranged to revolve about its own axis on the ball race C. Steel balls 2½ inches in diameter and 130 in number are used. A steel gear is cast concentric to the hopper and meshes with

FIG. 2—VIEW OF VANDERBILT FURNACE SHOWING NEW STACK, STANDPIPE AND CAST HOUSE.

the pinion E, the latter being driven by spur and bevel gearing as shown, by means of a five-horsepower motor. The small and large bells of the furnace are shown in position in the top. The small bell revolves with the hopper, being provided with a ball bearing in the bell rod.

The method of operation of the top is as follows: A skip load of ore and coke is discharged into the revolving hopper. The motor is then started and the hopper rotated some predetermined fraction of a revolution. The charge is then allowed to fall into the lower hopper and another skip load is then discharged as before. It is then rotated a greater or less amount than the first load and allowed to drop into the lower hopper. The governing idea is that the hopper shall be rotated varying amounts for each portion of stock which is charged into the furnace. In this way an even distribution of the charge is secured in the furnace. There are no high points in the stock. This causes the gases passing through the furnace to find a uniform resistance through the charge, and consequently the entire circumference is kept at an even temperature, resulting in a greater life for the furnace lining, and usually a decreased coke consumption for the given production of iron. The entire top is made in halves bolted together, making the dismantling for repairs a comparatively simple matter, inasmuch as it is unnecessary to remove either the bells or the bell rods. The lower ball race is made with holes cored in it, allowing all grit and dirt, which may find its way into the race to be ground to powder and then dropped out. No lubricant is used in these bearings and but little trouble has been encountered from breakage or other causes in installations in which this top has been used.

Furnace Details.

A double track deck bridge skip hoist is used to elevate material from the stock bins to the top. This is driven by an Otis duplex steam engine installed at the front of the

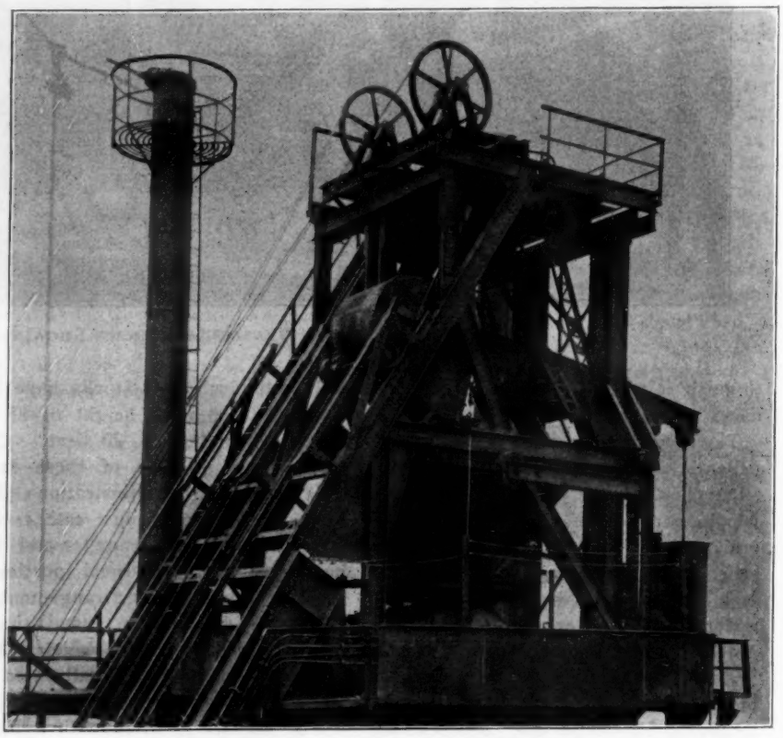


FIG. 3—MCKEE REVOLVING DISTRIBUTOR.

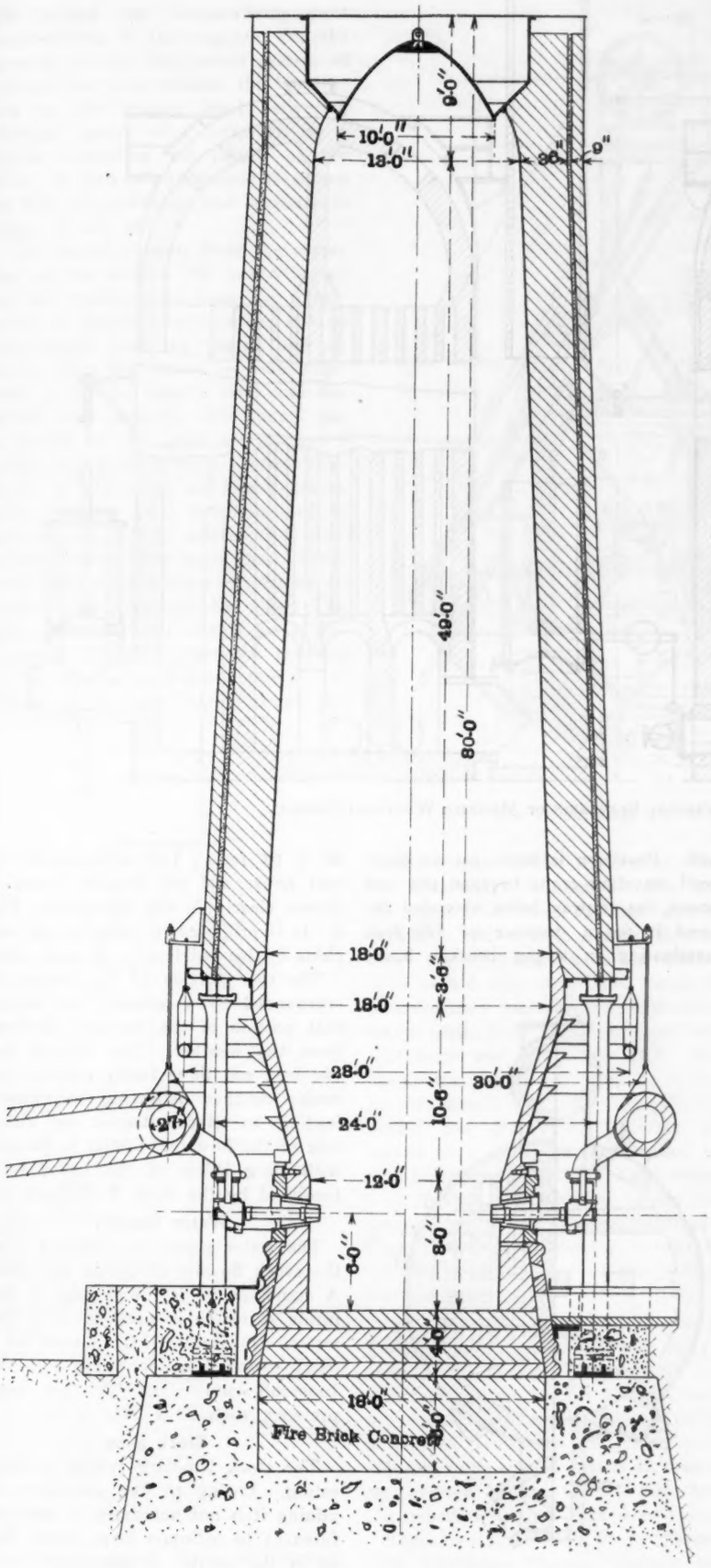


FIG. 4—CROSS SECTION OF FURNACE.

bridge. Some unusual details have been worked out in connection with the furnace, prominent among which may be mentioned the petticoat arrangement for taking care of the bosh water and the arrangement of the tuyere caps and sights. The illustration, Fig. 8, is an outline of the bosh and shows the arrangement of the cooling plates and tuyeres. It will be noted that a series of four inverted petticoats encircle the bosh with a vertical distance 24 inches between each petticoat. The cooling water is sprayed against the shell at the top and runs down into the first petticoat, which, however, does not quite touch the shell of the furnace. This deflects it against the shell and any water which drops from the shell is deflected again to it by the second, third and fourth petticoats. Passing through the last one, it drops into the gutter, whence it is removed by two 6-inch drain pipes. The arrangement of piping is clearly shown in the illustration.

The tuyere cap and sight are shown in the illustration, Fig. 9. This is designed so that the sight hole is always closed, except when it is in use. The cap comprises the bolt shown, which has lugs cast on it in which is mounted a U-shaped casting, provided with heavy balls at one end. From this U-shaped casting depend two lugs in which is carried a steel ball in which are mounted the blue glasses through which sights are taken into the furnace. The lugs in the U-shaped casting are provided with slotted holes in which the trunnions of these sighting balls are carried, and the center line of these holes are so arranged with reference to the tuyeres, that the axis of the sight holes is in line with the axis of the tuyere. A bushing is screwed into the tuyere cap against which the sight ball bears, and the outer end of this has a concave spherical surface which coincides with the surface of the ball. Convenient grips permit the ball to be turned in the slotted holes so that if desired the solid surface of the ball may be brought opposite the hole. The weight of the balls on the end of the U-shaped casting always keeps the sight ball in contact with the tuyere bushing. In operation it is proposed that when it is not desired to look into the furnace the balls shall be so turned that the solid metal of the ball will be opposite the opening in the cap. By slightly raising the weighed casting the ball is lifted from contact with the tuyere cap and can be easily turned so that the sight

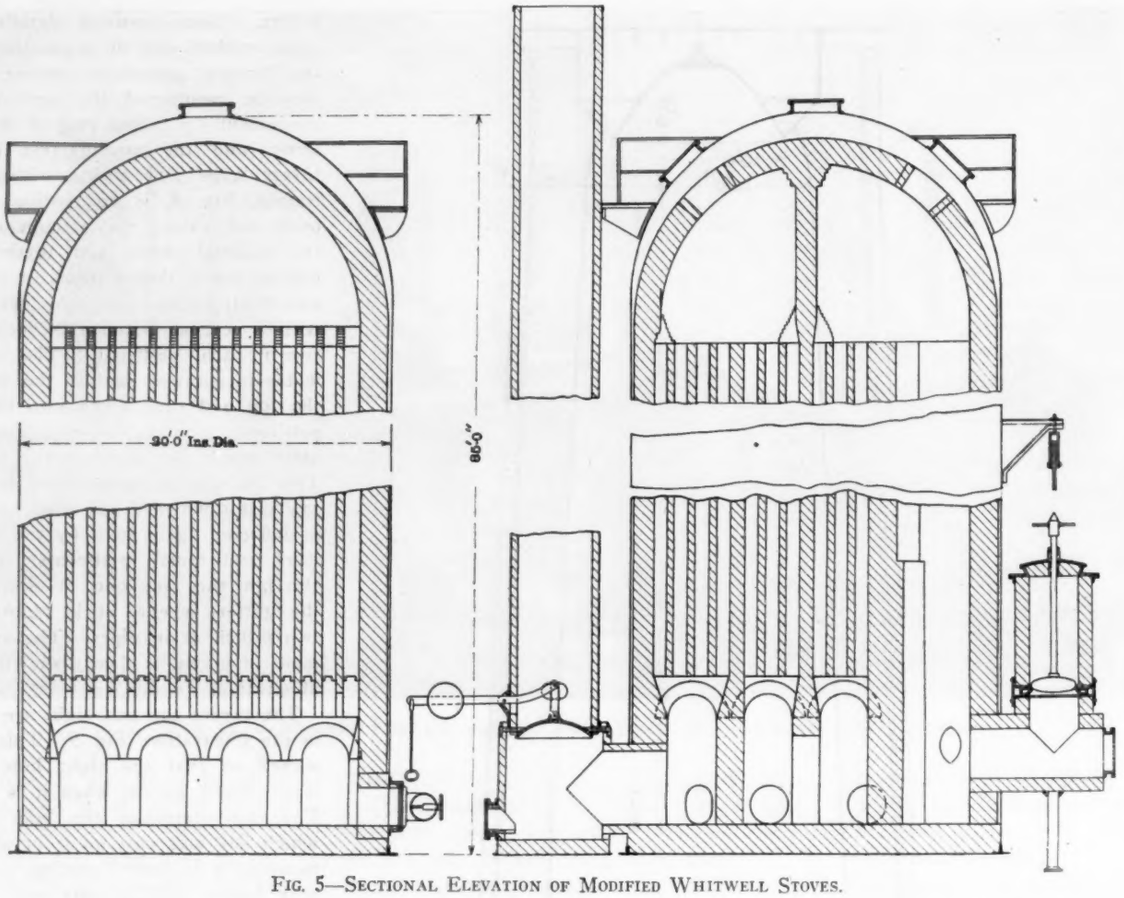


FIG. 5—SECTIONAL ELEVATION OF MODIFIED WHITWELL STOVES.

hole is in contact with the tuyere. After examining the interior, the ball is turned back to its original position, thereby keeping the glasses clean and preventing breakage.

Arrangement of Dust Catchers.

As before stated, the main dust catcher is 18 feet diameter, with a height of 24 feet. Two downcomers are taken from the furnace and united into one large main leading to the dust catcher, as shown in the illustration, Fig. 1. The gas mains leading to the stoves serving the two furnaces are interconnected, so that either furnace may be used on either set of stoves. In connection with this main, auxiliary dust catchers are provided, one of which is shown in Fig. 10, the gas entering at the bottom and being removed through two goose necks at the top and leading to the gas valves of the stoves. This arrangement of pipes and auxiliary dust catchers results in a gas unsually free from dust content for use in the stoves.

Cast House.

In connection with the furnace, a cast house has been provided 140 x 62 feet, inside dimensions, of steel and corrugated iron construction. This is open at both ends and along the lower half. Provision is made for an overhead traveling crane to span the cast house, the runway being extended beyond it for a distance of 120 feet, terminating in a pig breaker house 40 x 62 feet. The arrangement of cast house and pig breaker house is shown clearly in the illustration, Fig. 2. It is proposed to install a pig machine in this building at an early date.

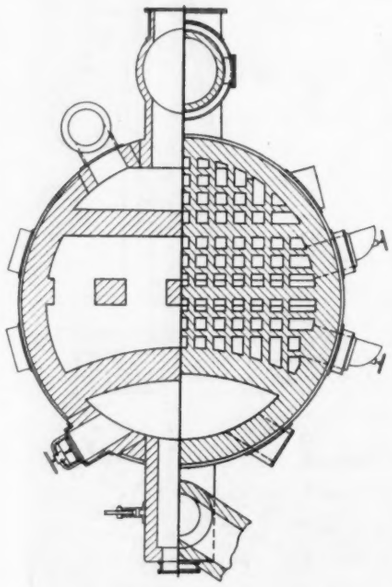


FIG. 6—HALF SECTION PLAN OF MODIFIED WHITWELL STOVES.

The rear portion of the furnace is surrounded by a petticoat to protect that portion of the working platform from the weather. The furnace has one iron and three cinder notches; the cinder notches delivering to runners leading to cinder tracks on either side of the furnace. Cinder is handled with Berg ladles of the latest type, furnished by the Wm. B. Pollock Co.

Water Supply.

The water supply is obtained from the creek flowing alongside the plant. A standpipe 95 feet high and 15 feet inside diameter is used to store the water. It is filled by means of a pump operated in connection with two Ingersoll-Rand class "A" air compressors, each 22 x 24¼ x 24.

Stock Bins.

The stock handling system is interesting. Owing to the conditions of mining it is not necessary at southern furnaces to maintain large stock piles as in the north. Consequently, it is only necessary to keep on hand sufficient ore, coke and limestone to tide

the furnace over comparatively short interruptions in the supply. For the present furnace, the tunnel system of storage has been utilized, the bins being on the ground level delivering through spouts to a larry car in a tunnel extending the length of the bins. A view of this tunnel is shown in Fig. 11, and plan and sections in Figs. 12 and 13.

The tunnel extends from the center line of the furnace 260 feet 6 inches on the opposite side from No. 1 furnace. A trestle is built on the ground immediately over the tunnel, and directly over the center portion adjacent to the skip hoist a steel coke bin of 625 tons capacity. The tunnel has a height to the crest of 13 feet 9 inches and it is 15 feet 6 inches wide. In it is laid a set of double tracks with Carnegie steel ties imbedded in concrete, on which operate two electrically driven larry scale cars. These were built from designs of Arthur G. McKee and furnished by him. The skip hoist descends into a pit a distance of 20 feet underneath the top of the rails in the tunnel. Ore is delivered to the larry cars through the spouts shown in the illustration, Fig. 11, while coke is shot directly into the skip hoist from the bin without weighing and a coke breeze elevator takes the screenings to a bin whence it is loaded into cars. The tunnel is of reinforced concrete, the reinforcing being plain bars bent into semi-circular form and set at an angle with the center line of the tunnel as shown in the sketch, Fig. 13. The pit and tunnel are drained in weather by means of a rotary pump installed by the Southern Hydraulic Engineering Co., Atlanta. In addition to the ore storage equipment above mentioned, there is an ore trestle for brown ore somewhat to the rear of the present storage system.

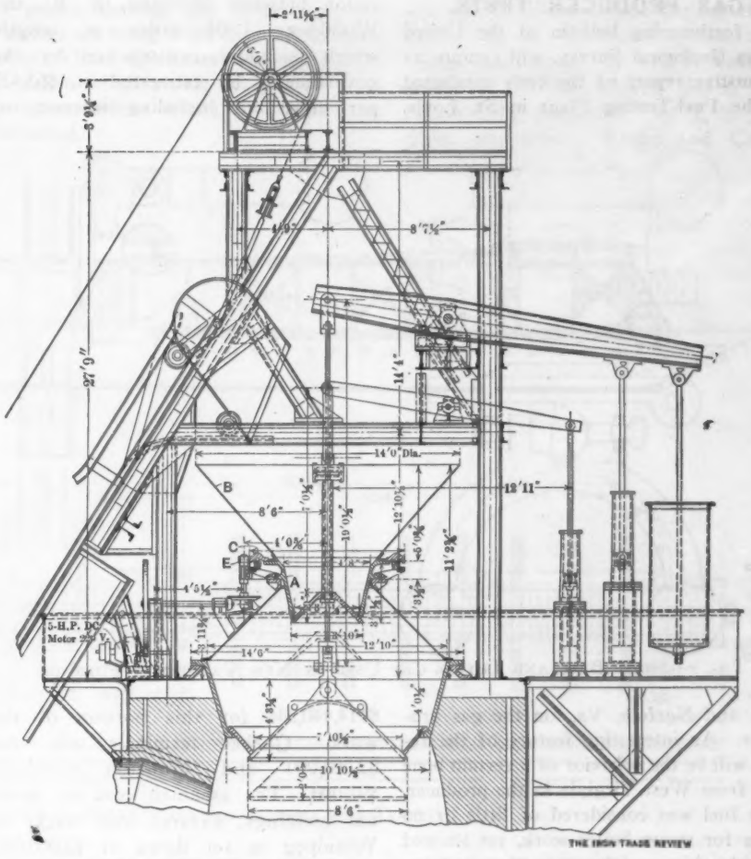


FIG. 7—DETAILED DRAWINGS OF MCKEE REVOLVING TOP.

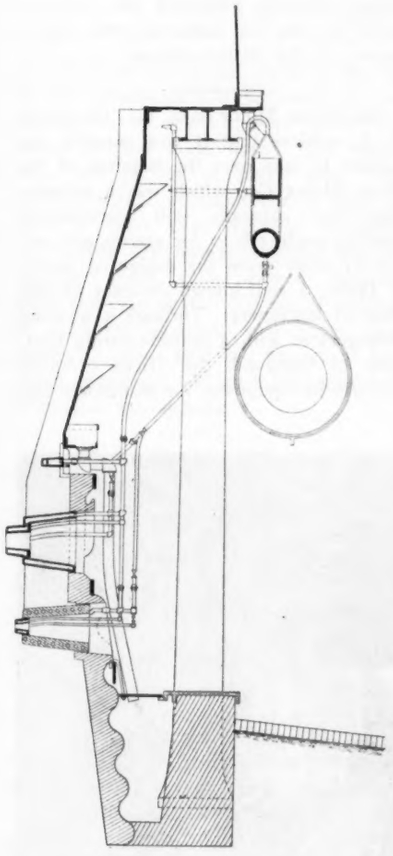


FIG. 8—SECTION OF BOSH OF FURNACE SHOWING ARRANGEMENTS OF PIPE AND TROUGHS FOR COOLING WATER.

The boiler equipment comprises nine Wick's boilers, each of 400 horsepower, and located as shown in the illustration, Fig. 1. An unusual feature connected with the boiler plant is a tapered reinforced concrete stack, 150 feet high and 63 inches in diameter, erected by the General Concrete Construction Co., of Memphis, Tenn.

There are three 44 x 84 by 60-inch long crosshead, simple, blowing engines, built by the Wm. Tod Co., of Youngstown, O. The power house contains two 75-kilowatt Westinghouse generators, direct connected to 12 x 14-inch heavy-duty Buckeye automatic engines. Two 1,000-horsepower Cochrane heaters and two 10 x 6 x 12-inch Knowles feed water pumps complete the power house installation, with the air compressors previously mentioned.

The officers of the Birmingham Coal & Iron Co., under whose administration the above furnace was constructed, consist of H. M. Atkinson, president; P. S. Arkwright, vice president, of Atlanta; James Bonnyman, treasurer and general manager; Richard Peters Jr., assistant treasurer and purchasing agent; T. J. Manson, auditor; Joseph A. Norman, sales agent; Chas. A. Moffett, superintendent of machinery; and D. F. Gibson, furnace superintendent, all of Birmingham.

The capital stock of the Alabama Fuel & Iron Co., of which Percy Walker is president and W. T. Dillon is secretary, has been increased from $2,000,000 to $2,500,000. The company owns coal mines in the Alabama district and is said to contemplate becoming an iron manufacturer.

GAS PRODUCER TESTS.

A forthcoming bulletin of the United States Geological Survey, will contain an exhaustive report of the tests conducted at the Fuel-Testing Plant in St. Louis, Mo., and Norfolk, Va., on the gas producer. An interesting feature of the report will be the behavior of a certain bone coal from West Virginia in the producer. This fuel was considered of little or no value for steam boiler work, yet showed considerable usefulness in the gas producer, developing at the engine a brake horsepower per hour for 1.65 pounds of coal.

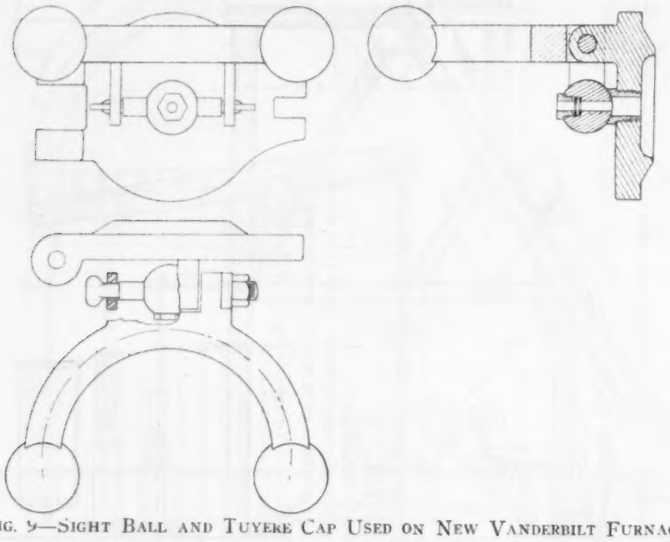


FIG. 9—SIGHT BALL AND TUYERE CAP USED ON NEW VANDERBILT FURNACE.

CANADIAN IMPROVEMENTS.

Hon. George P. Graham, Canadian minister of railways, made an important statement in the Dominion parliament on July 6 respecting the Grand Trunk Pacific railway, which he expects to see fully completed by Dec. 1, 1911. The cost of the division between Moncton, N. B., and Winnipeg, 1,804 miles in length, which is under construction by the government, he estimated at $63,437 per mile, not including interest, or $114,440,348 for this portion of the work. Quebec terminals will cost $2,000,000 and Moncton terminals $97,000. The assumed cost of terminal buildings, fixtures and tracks at Winnipeg is set down at $2,000,000, to be partly paid by the government. The prairie section, from Winnipeg westward to Wolf creek, 119½ miles west of Edmonton, has been located, the estimated cost of construction being $61,520,000. The total liability of the government for the Quebec bridge is $6,520,000.

Rebuilding the Quebec Bridge.—The rebuilding of the Quebec bridge is to be undertaken entirely on the responsibility of the Dominion government, if parliament passes the bill submitted by the majority report of the committee recently appointed to investigate the situation. As most of our readers know, the cost of building so immense a structure was too great for private enterprise, especially as the direct financial return would be very small, so the bonds of the company were guaranteed by the Dominion government to the extent of $6,680,200, in addition to subsidies granted by the province and city of Quebec, respectively, and by the Dominion government. The bridge company is now bankrupt and the government, therefore, now stands liable for these bonds, with assets back of them consisting of the existing partially finished structure at the north side of the river, the approaches, the material in the yards and the land which has been acquired, valued by the majority report at $3,000,000. It is inferred that no further action is to be taken against the Phoenix Bridge Co., but that its loss, noted above, represents the amount not yet paid for material delivered or in process of fabrication at the time of the accident. A minority report of the committee severely censured the government for the lax financing and supervision of the entire scheme.

The Hicks Motor Mfg. Co., Garwood, N. J., advises that it was recently organized to take over the business of the Hicks Motor Co., which was a partnership. The company will manufacture gasoline engines both for marine and stationary work from the design of Harry E. Hicks, a well known designer of this class of machinery. Through a working arrangement with a manufacturing company at Garwood, the Hicks company will use its equipment for manufacturing.

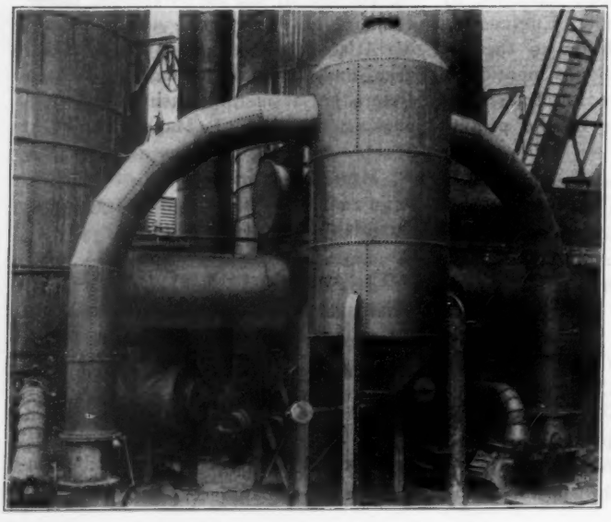


FIG. 10—AUXILIARY DUST CATCHER.

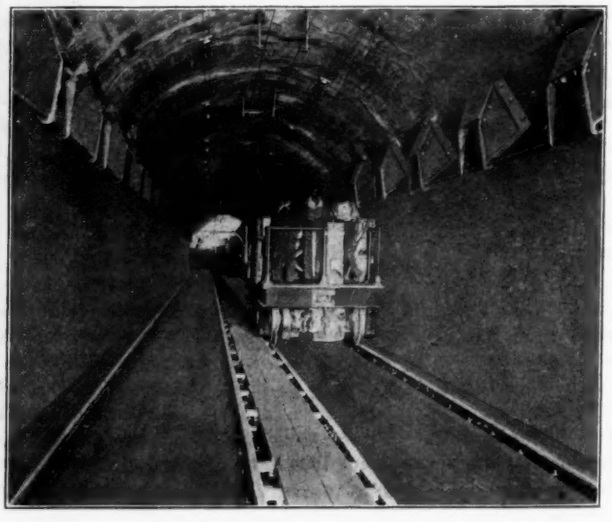


FIG. 11—STORAGE BINS EMPTYING INTO CARS IN TUNNEL.

THE LARGEST GAS ENGINE.

The largest vertical gas engine in the world was started June 6 at the works of the Castner-Kellner Alkali Co., Ltd., Runcorn, Eng. It is a 1,000-Brake horsepower engine of standard vertical type, supplied by the British Westinghouse Co., and is connected to a direct-current generator made by the same firm. The cylinders are placed in pairs over four cranks, which arrangement is said to give a most even turning moment. All valves are operated positively by straight push rods moved directly from the cam shaft. No water cooling is used for pistons, valves, or cam shafts, in order to avoid danger of frequent breakage. Forced lubrication is employed throughout.

Electrical Devices.—The Cutler-Hammer Mfg. Co., Milwaukee, has entered upon the manufacture of a line of push button electrical specialties including lamp sockets and a variety of switches. This is a very recent departure and covers a number of devices of interest to steel mill, foundry and mine superintendants. The mechanism for these various appliances was devised by this company and is offered as a simple, efficient and quick acting "make and break" connection. The armature or movable part of the switch is fitted with an annular coil spring. This spring fits around the push piece, which is of largest diameter in the middle, tapering toward each end. The armature then is snapped back and forth by the contraction of the coil spring on the tapering surface of the push piece. A model showing this mechanism and catalogs are being distributed by the company. These specialties are enclosed in porcelain which avoids the possibility of corrosion where fumes or moisture is prevalent.

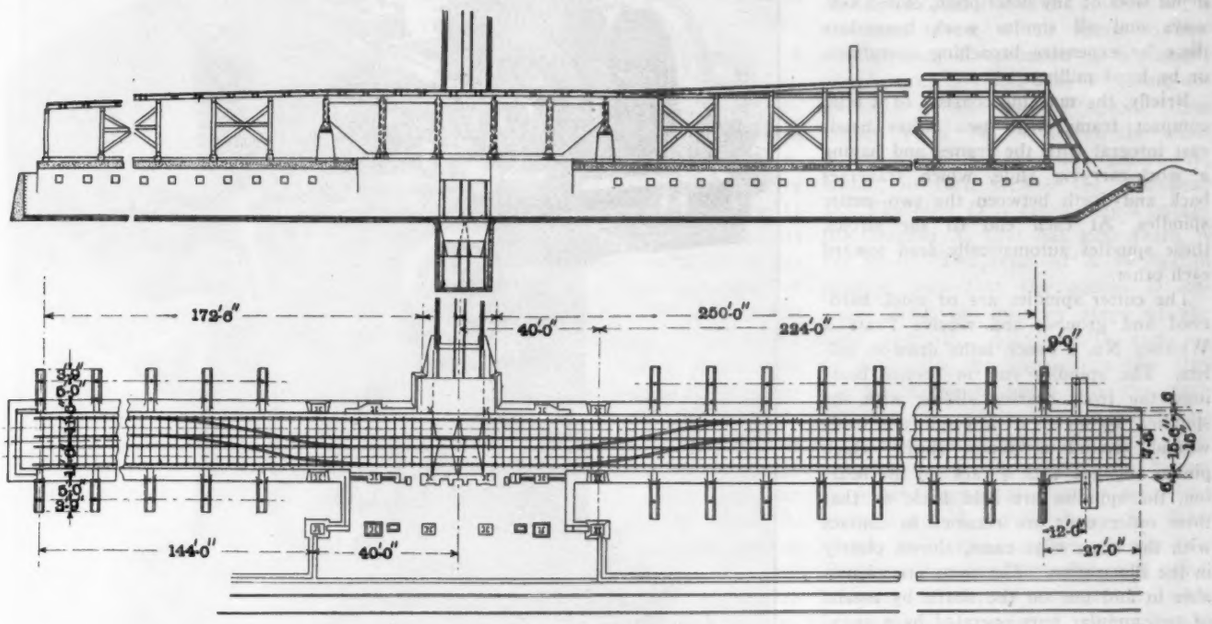


FIG. 12—GENERAL ARRANGEMENT OF TUNNEL AND TRESTLE.

Master Blacksmiths Meet.—The sixteenth annual convention of the International Railroad Master Blacksmiths' Association will be held at the Grand hotel, Cincinnati, Aug. 18, 19 and 20. The program includes the following subjects for papers and discussion: "Flue Welding," by George Lindsay, chairman; "Tools and Forgings for Bulldozers and Steam Hammers," by G. M. Stewart, chairman; "Case Hardening," by W. V. Laizure, chairman; "High Speed Steel, and the Results Obtained," by J. S. Sullivan, chairman; "Frogs and Crossings," by T. F. Keane, chairman; "Subjects for 1909," by U. Uren, chairman; "Locomotive Frame Making and Repairing, Steel and Iron," and "Your Experience on Both Steel and Iron," by I. T. McSweeney, chairman; "Thermit Welding of Locomotive Frames and Other Works," by G. W. Kelly, chairman.

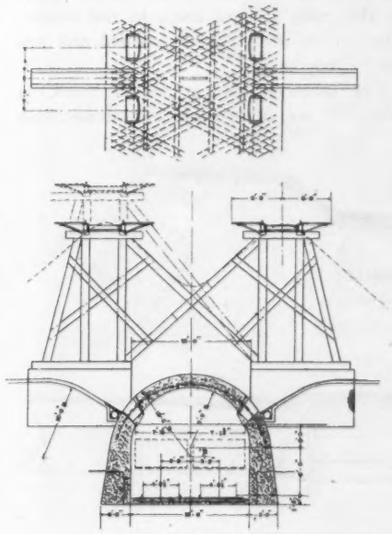


FIG. 13—CROSS SECTION OF ORE TUNNEL AND TRESTLE SHOWING METHOD OF SETTING REINFORCING BARS.

Staybolt Iron Tests.—Below are the results of vibratory tests of eight samples of Falls hollow staybolt iron, at Purdue University laboratory for testing materials, May 7, 1908, as certified to by W. K. Hatt, professor of civil engineering:

No.	Tension load lbs. per sq. in.	Revolutions per min.	No. Revs. to rupture.
1	4000	100	10188
2	4000	100	13123
3	4000	100	8339
4	4000	100	9363
5	4000	100	8868
6	4000	100	10880
7	4000	100	11888
8	4000	100	5318
Average			9746

The tests were made on an Olsen staybolt machine in accordance with the specifications recommended by committee on staybolts of the American Society for Testing Materials.

The annual meeting of the Allis-Chalmers Co. will be held Nov. 1, at 15 Exchange Place, Jersey City.

THE SPLINE MILLING MACHINE.

A new departure in milling machine construction is found in the spline milling machine designed and built by the Pratt & Whitney Co., Hartford, Conn. This tool is designed to cut to any practical depth slots of any description, closed keyways and all similar work heretofore done by expensive broaching operations, or by hand milling.

Briefly, the machine consists of a stiff, compact frame, with two cutter heads cast integral with the frame, and having a work-carrying slide, which traverses back and forth between the two cutter spindles. At each end of the stroke, these spindles automatically feed toward each other.

The cutter spindles are of steel, hardened and ground, and receive Pratt & Whitney No. 3 bench lathe draw-in collets. The spindles run in bronze bearings, the front bearing sliding with the spindle. By means of a weight and cable wound around a pinion shaft, which pinion engages with a rack on the bearing, the spindles are held back, so that their outer ends are retained in contact with the large edge cams, shown clearly in the illustration. The cams are adjustable in and out on the shaft, by means of two annular nuts operated by a spanner wrench. On the periphery of the cams are graduations, which are used as a guide in setting the depth of cut.

A so-termed fish-tail cutter, with two, three or four lips, is used for milling slots. This form permits the cutter to be fed into the work at each end of the stroke, thus dispensing with drilling the usual starting hole in closed end slotting.

The cutter spindles are driven by a three-grade cone, through gearing enclosed within the frame. The cutters run in opposite directions, so that right hand tools are suitable for both spindles.

The cutter spindles may be operated independently or simultaneously, and where a slot is not required entirely through the work, it is frequently found economical to adapt the work-holding fixture to receive two pieces of work and to mill a slot in each piece at the same time. In the case of tang slot milling, the cutters enter from opposite sides, one cutter being advanced ahead of the other, so that they do not meet in the center. The cutters are easily sharpened and are not expensive.

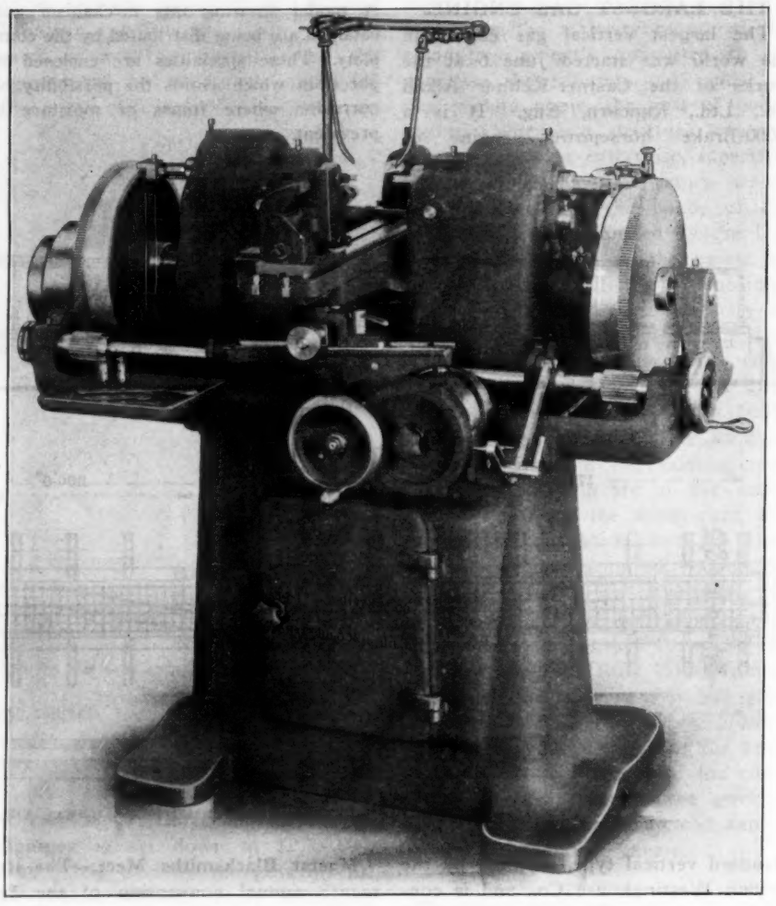


FIG. 1—GENERAL VIEW OF SPLINE MILLING MACHINE.

The table, which carries the work, is made of the same form and dimensions on its face as the regular Pratt & Whitney No. 3 bench lathe beds. All fixtures fitting the bench lathe are interchangeable with this machine. The table is automatically traversed in both directions by a constant speed cam, plainly shown in the illustration, operating a rocker arm, to which is connected a long link. It is obvious that the farther from zero the link connection is adjusted, the greater distance the table will be moved in a given time, and to compensate for this, five changes to the power-feed shaft are provided. Thus, the table feed may be kept constant, or varied in any manner desired. The feed changes are accomplished by the movement of a sliding key, which engages with one of the five sets of gears enclosed in the column.

The index pin and dial are conveniently placed directly in the rear of the right-hand cutter spindle. The contour of the table cam is such as to cause the table to stop at the end of its stroke, while the cutter spindles are fed forward by a partial rotation of the large end cams. These cams have gear teeth cut entirely around their periphery, and are in mesh with pinions keyed to the long cross shaft. This shaft may be operated by hand for quickly rotating the edge cam, thus bringing the cutters close to the work.

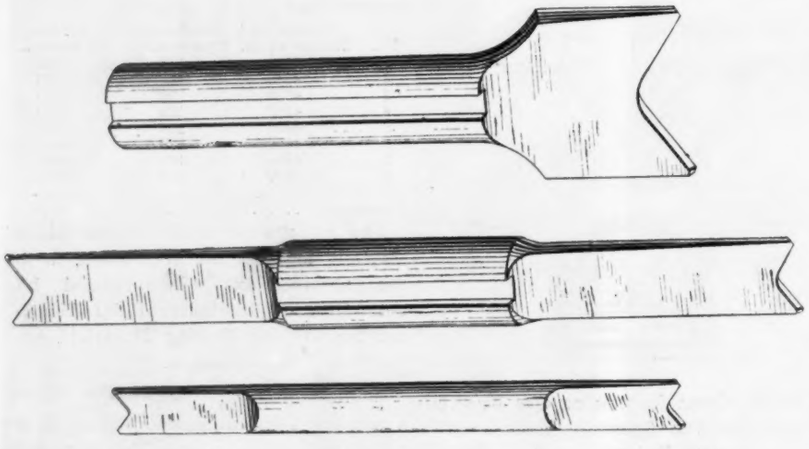


FIG. 2—FISH TAIL CUTTERS USED ON SPLINE MILLING MACHINE.

The automatic feed is by means of an adjustable link motion, such as is commonly used on shapers and planers.

A rotary pump is regularly furnished with the machine, insuring a liberal sup-

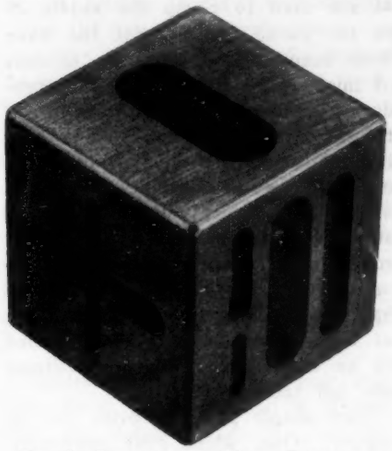


FIG. 3—SPECIMEN OF WORK DONE ON SPLINE MILLING MACHINE.

ply of lubricant to cool the cutters and to carry away the chips.

The following table gives the general dimensions of the machine:

Stroke of table	0 inch to 4 inches
Greatest thickness through which slot may be milled	4 inches
Greatest depth that may be milled by one cutting spindle without readjustment to cam	2 inches
Distance from center of cutter spindles to top of table	3½ inches
Number of changes to spindle speeds	6
Weight, with countershaft	1,860 pounds

Clearly Shows Depression.—The effect of the industrial depression is clearly shown in a comparative statement of the tonnage and earnings of the Pittsburg Coal Co. for the six months ending June 30, 1908, with the first six months of 1907. The summary shows: Coal in 1908, 5,422,052 tons, compared with 8,982,236 tons in 1907. Coke in 1908, 4,146 tons, compared with 244,198 tons in 1907. Earnings show a net loss in 1908 of $393,629.53 compared with net earnings in 1907 of $1,128,011.57, a decrease of $1,521,641.10.

The Globe Ornamental Iron Works, Newark, N. J., advises respecting its recent incorporation, that it intends to handle light structural and architectural iron work, fire escapes, etc., but it does not intend to do any building at present, as it is well located, and the building now used will probably do for this year. The company intends adding to its present equipment some belting power hammers for forging, and some general tools for machining purposes, such as lathes, etc. It reports enough work in the foundry to keep going for several months.

A NEW UNIVERSAL MILLING MACHINE

We illustrate herewith several views of a new positive drive, high power, universal milling machine, built by Kearney & Trecker, Milwaukee, Wis. The frame is a box section, massive, and with no unclosed openings. A door at one side of the frame provides easy access to the interior.

The machine is of the constant drive, high power type, the advantages of which have become pretty generally known. The pulley 7 (Fig. 1) drives a shaft that has a pinion on its inner end, engaging with a larger gear, giving a speed reduction of about 3½ to 1, the pulley running 350 revolutions per minute. This larger gear runs idle on a shaft, and is free to move endwise thereon. To one side of this gear is attached a hardened steel clutch; on this same shaft is another gear, similar in size, that also carries a clutch. This last gear meshes with a gear directly above it, which drives the feed and also meshes with pinion V shown on the line drawing (Fig. 4.) The first large gear mentioned, the one engaged with the pinion on the pulley shaft, is moved by the starting lever, until the clutches referred to become engaged, thus starting and stopping the machine without using friction clutches. This is possible, by reason of the fact that these clutches revolve always at a constant speed, which speed is low enough not to produce a noticeable shock upon starting the machine, regardless of the spindle speed. The pinion V in Fig. 4 drives the shaft B, to which is keyed the pinion W, which, in turn, drives the idle gear D. The idler D is carried by a swinging bracket X, that has gear teeth A cut in it. The segment X swings in such a way that the pinion D engages with the various steps of the cone gear E. Attached to and revolving with the cone E is the pinion O, which engages with the gear N; this gear turns idle on the spindle and carries the pin M. The sleeve gear F has two gears I and K, which engage alternately with the gears J and L on the cone E. The sleeve is keyed to the spindle G. The gear I, when moved to the right, bringing K out of engagement with L, engages the gear I with the pin M, thus giving three speeds, which multiplied by the six speeds obtained

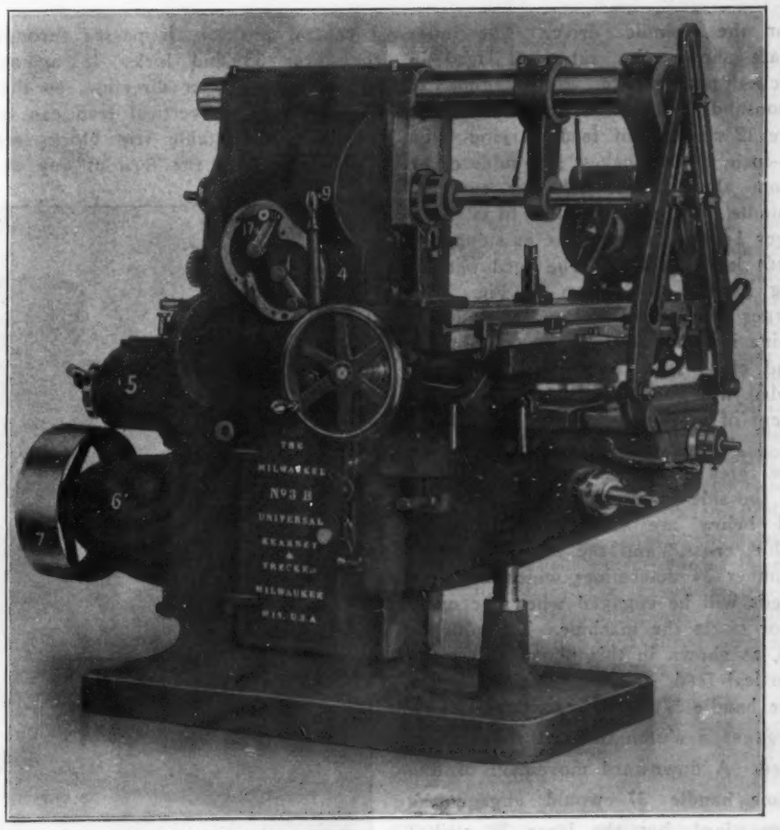


FIG. 1—GENERAL VIEW OF KEARNEY & TRECKER MILLING MACHINE.

by the cone E and idler D gives 18 speeds in all.

The feed is driven from the constant speed shaft through gearing quite similar to that shown in Fig. 4 for the spindle drive. The index plate shows the rates of feed in inches per minute, rather than in thousands per turn of spindle. There are 12 changes of feed, varying from ½-inch to 16 inches per minute, or from about 0.0015-inch per turn of spindle for small cutters to a little over 1 inch per turn for finishing cuts with large cutters. The feed operating handles are shown in Fig. 2 in larger detail than in Fig. 1. The machine is furnished with a vertical table and cross feed, and means are provided whereby the accidental engagement of more than one of these feeds at a time is prevented. For each of the three feeds there is a hole drilled in the side of the knee 33 and stamped below are the words "vertical, table, cross," and the location of the plunger 34 determines which of these feeds will be engaged when the operator starts the machine. The plunger 34, as shown in this photo, is set for vertical feed. In the position shown, the handle 37 can be raised up, which engages a clutch to start the vertical feed. A downward movement of this same handle 37 would engage the cross feed, but the lever 38 strikes the plunger 34 and prevents such engagement. In a similar manner engagement with the vertical feed is prevented, when the plunger 34 is set in the opposite hole marked "cross." When the plunger 34 is in a central position, it passes through the lever 38 and locks it against movement in either direction, so that neither cross or vertical feed can be engaged. Adjustable trip blocks are provided to trip the feed at any desired point, and fixed trips are provided at the end of the stroke of all the feeds.

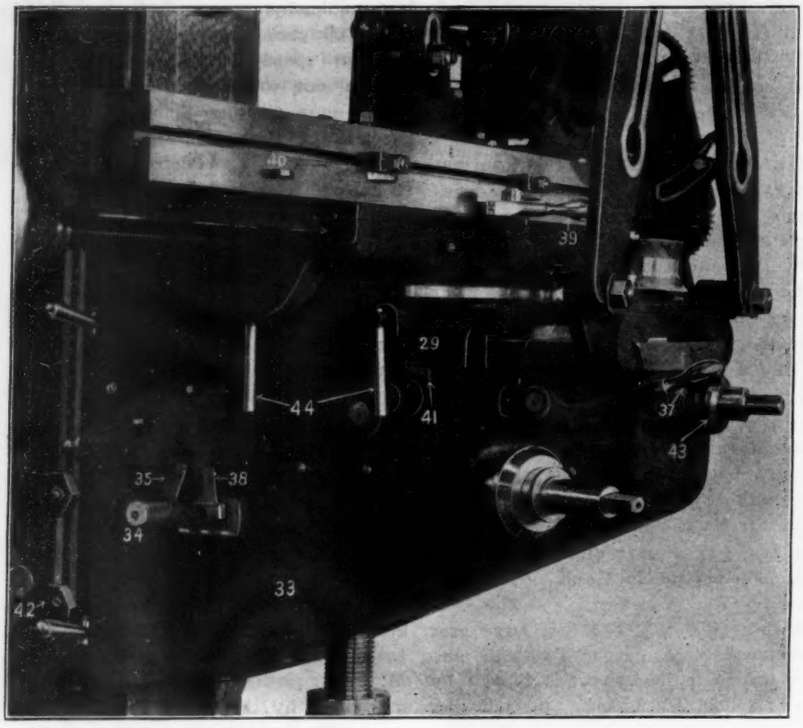


FIG. 2—DETAIL OF KNEE, KEARNEY & TRECKER MILLING MACHINE.

Ball bearing thrust collars are provided on all feed screws. The handles 44 are used to clamp the saddle 29 to the knee. To prevent the knee from becoming distorted, on account of this clamping, or from strains produced by the action of the cutters on the work, it is cast without a hole through the top. This feature not only renders the machine more rigid and less liable to distortion under strain, but also permits greater cross-range and consequently wider tables on universal machines. The machine has a table 14 inches wide, 12 inches of cross-range, and can be swiveled to an angle of 52 degrees, utilizing the full table travel.

Two simple pumps provide the oil supply. One, which runs constantly, furnishes a continuous cascade of oil for the gears located in the frame. The other, which only runs with the spindle, supplies a stream of oil to the cutters. The oil, which is carefully strained before returning, is stored in a tank in the base of the machine.

An enlarged general view of the dividing head is shown in Fig. 3. It will be seen that the worm wheel is on the front end of the spindle, which makes it possible to make it very much larger in diameter, than if it were placed in the interior of the head. This larger diameter is conducive to accuracy, and the placing of the index plate and the plunger directly on the worm shaft avoids in-

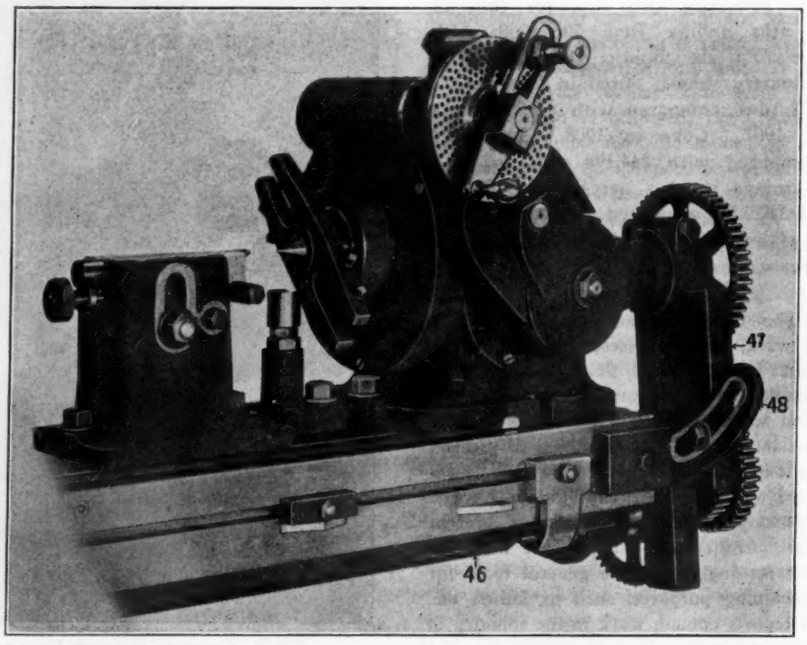


FIG. 3—UNIVERSAL DIVIDING HEAD, KEARNEY & TRECKER MILLING MACHINE.

accuracy that may arise on account of indexing through gearing. To prevent the end of the spindle from becoming exceedingly high, when turned to a vertical position, the center line of the spindle is taken considerably above the axis of the center block, so that the end of the spindle moves downward, before reaching the vertical position.

This machine has 36 inches of table feed, 12 inches of cross feed and 19 inches of vertical feed. The drive pulley is 16 inches in diameter and runs 350 revolutions per minute. A 5-inch belt is used.

GRINDING MACHINE FOR PIPE THREADING DIES.

Illustrated herewith is a new machine built by the Bignall & Keeler Mfg. Co., Edwardsville, Ill., specially designed for grinding the dies of pipe threading tools.

To obtain good results and prevent torn and stripped threads, specially on steel pipe, it is essential that the dies be kept as sharp and be ground as exactly as any other cutting tool. That this is seldom done is due largely to the fact that heretofore no suitable appliance for grinding dies has been available. The Bignall & Keeler grinder fills this requirement.

The machine contains a specially formed wheel on one end of the spindle. The die is clamped to the platen beneath this wheel, under which it is moved back and forth by a lever, and at the same time, it is gradually raised against the grinder by means of a hand wheel. The gage on the platen, against which the die is placed, is adjustable to any angle with the wheel. Straight thread dies, as well as the regular taper dies, can be ground. The shape of the wheel gives the die the correct angle of rake. A wheel template and dresser is furnished, to assist in dressing the wheel to the proper shape. The cone-shaped wheel on the other end of the spindle is for grinding the lead.

By removing the special shaped wheel, and using a straight wheel, the machine may be used as an ordinary grinder.

The machine is simple, stiff and rugged in design; reguires no special skill, and can be operated by a boy.

PROFIT SHARING PLANT.

The profit-sharing plan of the United States Steel Corporation, which went into effect in 1903, has resulted in the purchase of 175,493 shares by employes, worth at the present market value $18,953,314. They cost their owners originally $14,735,780, leaving a paper profit of $4,217,534 for the present holders. In 1903, the employes paid $82.50 a share; in 1904, $55; in 1905, $87.50; in 1906, $100; in 1907, $102; and in 1908, $87.50 a share. In addition, holders since 1903 have been paid dividends of $35 a share as well as bonuses of $25 a share.

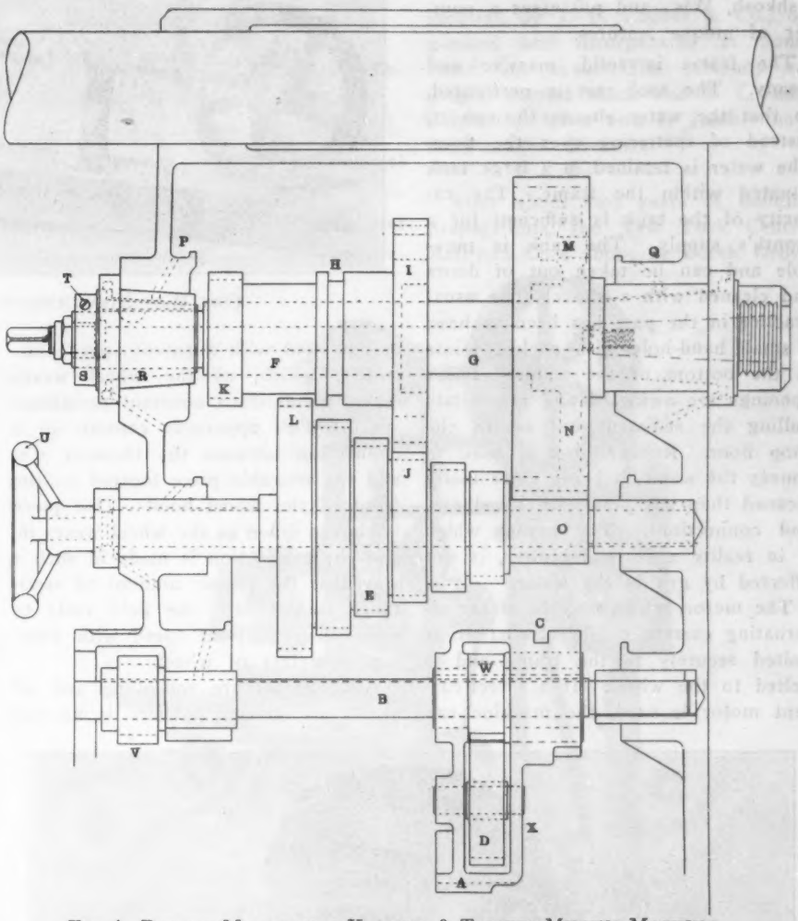
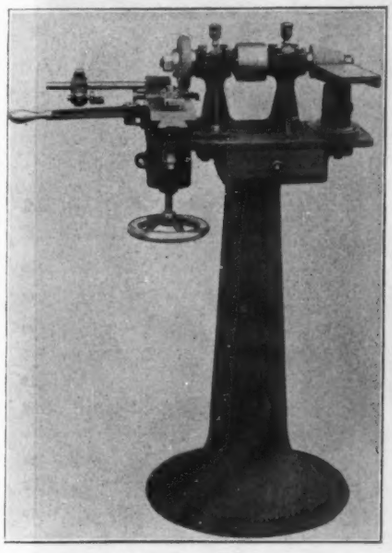


FIG. 4—DRIVING MECHANISM, KEARNEY & TRECKER MILLING MACHINE.



SPECIAL GRINDER FOR PIPE THREADING DIES.

Culebra Cut Half Completed.—According to reports received at the Washington offices of the Isthmian Canal Commission, 47,045,426 cubic yards have been removed from the great cut at Culebra, while it is estimated that 39,652,822 cubic yards remain to be taken out. Of the amount already excavated, 12,600,000 cubic yards were taken out by the old French company from 1881 to 1889, and 10,000,000 cubic yards by the new French company from 1895 to 1904. Since the American government took charge 18,445,426 cubic yards have been removed. If the present rate of excavation be maintained, the cut will be completed in about three and a half years.

Representatives of the Republic Iron & Steel Co. and of the Amalgamated Association employes of the Sylvan mill, at Moline, Ill., have agreed upon a satisfactory wage scale for the Sylvan mill.

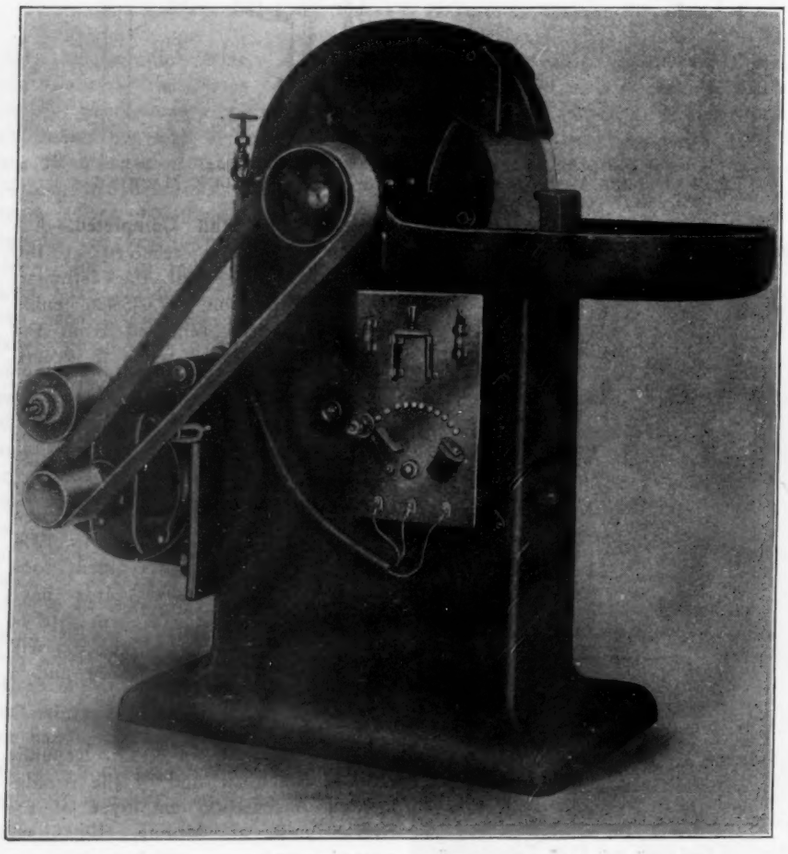
RANSOM MOTOR-DRIVEN TOOL GRINDER.

The motor-driven tool grinder, which we illustrate herewith, is manufactured by the Ransom Mfg. Co., Oshkosh, Wis., and possesses a number of unique features.

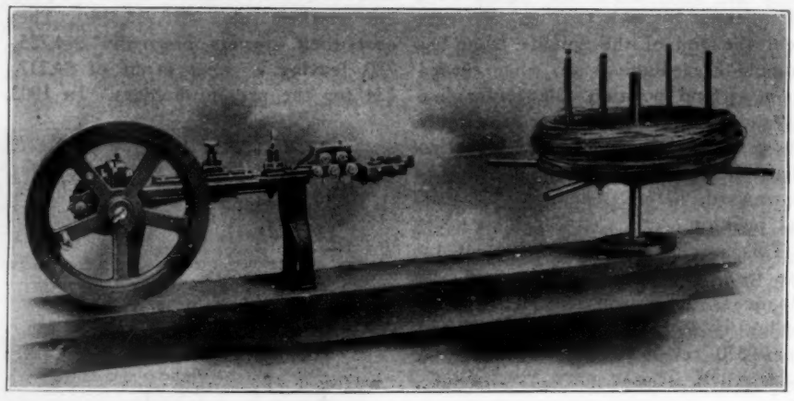
The frame is solid, massive and steady. The tool rest is perforated, so that the water shoots through it, instead of spattering over the floor. The water is retained in a large tank situated within the frame. The capacity of the tank is sufficient for a month's supply. The tank is movable and can be taken out of doors and cleaned with a shovel. The usual practice in the past has been to have a small hand-hole with packed joints in the bottom of the frame. These openings are awkward and necessitate pulling the sediment out on to the shop floor. Rubber hose is used to convey the water, it being more easily cleaned than gas pipe with its elbows and connections. The pump, which is in reality a vertical blower, is not affected by grit in the water.

The motor, which may be either alternating current or direct current, is bolted securely to the frame and is belted to the wheel. If a direct-current motor is used, the machine can be equipped with a patent speed controller, which, as the wheel wears down, maintains a constant peripheral speed. This apparatus consists of a connection between the rheostat arm and the movable piece located on the front of the wheel hood. This piece is shoved down as the wheel wears in, and the connection is made in such a way that the proper amount of resistance is put into the field coils to maintain a constant speed with varying diameters of wheel.

All journals are self-oiling and all shafts are ground. There is no water on the wheel, except when it is running. The emery wheel dresser is simple and requires little time to adjust.



MOTOR-DRIVEN TOOL GRINDER.



CORE WIRE STRAIGHTENING AND CUTTING MACHINE.

CORE WIRE CUTTING MACHINE.

The core wire cutting and straightening machine shown in the accompanying illustration is designed to straighten and cut wires for cores for foundry use. On the improved No. 7 machine shown herewith, the bundle of wire is placed on the reel and is then put through the straightening rolls. This operation is very simple, the rear adjustable roll being set in far enough to put a bend in the wire and the next adjustable roll is set forward toward the wire to take out the bend made by the first rear roll. The forward roll in each set should always be adjusted in the direction that the wire is curving until it leaves the rolls absolutely straight. The wire passes from the straightening roll to the tension, which is provided merely to prevent the wire from slipping back when the clutch or shuttle releases it. The wire is then pushed forward through the shuttle, which grips it in its forward movement and slips over the wire when moving back. The length of the wire is gaged by the arm which connects the clutch with the graduated disc on the side of the machine. This disc has an adjustment up to 6 inches and for cutting wire in greater lengths a small lever is provided which, when set, causes the machine to cut every other revolution, thus doubling the length of the wire before it is cut off. In case an 8-inch wire is desired, the pointer on the disc is set at 4 inches; the lever is set and the machine will cut wires 8 inches long. This gives a capacity to the machine for cutting wires up to 12 inches in length and ⅛ inch in diameter. By

means of a trip pin in the fly wheel, the machine can be adjusted so that it can be used as a wire straightening machine alone, thereby throwing off the cutting-off mechanism. The operations are quickly accomplished, each wire being measured automatically and regardless of any variation in the speed of the machine, all wires will be the same length. The wire straightening device can be adjusted for any size of stock. The machine has a cutting capacity of 100 wires per minute.

The machine is manufactured by the Gregg Mfg. Co., 1318 West Fourth street, Cleveland, O.

A LIGHT MOTOR-DRIVEN MILLING MACHINE.

We illustrate herewith one of the motor-driven Fox milling machines built for the Boston navy yard by the Fox Machine Co., Grand Rapids, Mich. The motor gives 14 speeds and is belted to the countershaft. It is hinged on the sub-base, and can be readily elevated by means of a foot treadle, which also acts as a belt tightener. The controller is mounted on a separate column, enabling the operator to place it to suit his convenience. The machine is the regular Fox No. 3½ light miller provided with a differential back gear located inside the cone pulley.

The machine is provided with the Fox patent feed mechanism. In this mechanism every combination of engagements is comprised of worms and worm gears, which lock every action and preclude the possibility of play or back lash. The spindle is of crucible steel, with a 9/16-inch hole and fitted for No. 9 Brown & Sharpe taper. The spindle bearings are ground and run in bronze boxes. The saddle bearing is much longer than that of many heavy milling machines, being practically the same length as the travel of the table. Extreme rigidity is the result. The knee bearing is long and is extended upward to a point nearly level with the top of the table. The overhanging strain on the knee is resisted more by one inch thus added to the top of the bearing than by two inches added to the bottom.

The vertical adjustment of the knee is by means of a hand wheel, rotary nut and stationary screw. No hole in the floor is required. The adjustment of the knee is registered on a micrometer dial. By turning the clamping nut in the center of the hand wheel, the dial can be loosened, set at zero and instantly clamped back in position. The ability to set the dial at zero ready for a fresh reading in this convenient way is of great value. The arrangement of the motor drive is very plainly shown in the illustration.

SHIPPERS WILL FIGHT

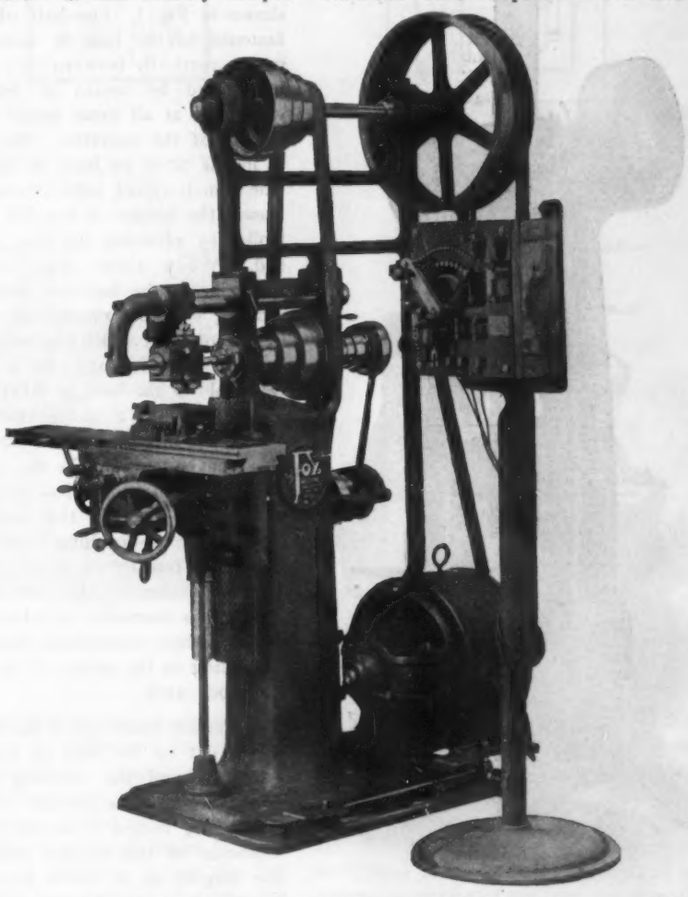
Freight Rate Increase, Promising Co-operation to Indiana Association.

Indianapolis, Ind., July 27.—It is generally understood that the Central Freight Association is preparing to raise freight rates in its territory and manufacturers in this locality are preparing to fight the proposed increase. Secretary J. V. Zartman of the Indiana Manufacturers' and Shippers' Association has received letters from officers of similar associations in 42 states, offering to co-operate in any effort to keep rates down. As a result, he is preparing to call a conference in this city at an early date at which it is probable representatives of manufacturers' associations of every state will be present.

The Charles E. Francis Co. was organized at Rushville last week with a capital stock of $25,000 and is preparing to manufacture a large line of machinery and supplies. Charles E. Francis, Harry G. Francis and George J. Grieser are the directors and principal stockholders.

Sheet metal products will be manufactured by J. C. Lauber & Co., organized and incorporated at South Bend last week. The company has $10,000 capital stock and J. C. Lauber, O. J. Klaer and E. Lauber have been elected directors.

After about two years of building preparations, the New York Central Railroad Co.'s shops at Beech Grove, just outside the city limits, have begun operations with 160 employes. This number will be increased to 300 within a few days, and ultimately 3,000 men will be employed. The building now in operation are a machine and erecting shop 574 by 311 feet, a boiler shop, forge room and power house. Several Niles cranes are used, one having a lifting capacity of 120 tons. About 95 per cent of the machinery is direct motor driven, there being three 500-kilowatt turbo generators running 3,000 revolutions a minute. Other buildings are under construction.



Fox Motor-Driven Light Milling Machine.

THE MANUFACTURE OF DROP FORGINGS

One of the industries which has made great strides of progress in recent years is that of the manufacture of drop forgings. This might also be properly designated as machine blacksmithing, and is the growth of a demand for cheaper and more uniform forgings. By the original or more primitive methods, forgings were made by hand or under a hammer without the use of forms or dies in consequence of which it was impossible to produce cheaply a uniform article. Today drop forgings of tobin bronze, copper, aluminum or steel, according to requirements, are produced in dies which are made in two parts. These dies are often of such construction as to include on their sides the roughing form or "breaking down" form in addition to the finished form of the articles to be forged. However, many forgings require separate "breaking-down" dies, and several forming dies, the number necessary being governed by the shape of the forging to be produced. The shape of this "breaking-down" form is generally developed by making several tests to decide the best shape for distributing the metal, with due reference to the stock used and the finished article to be produced.

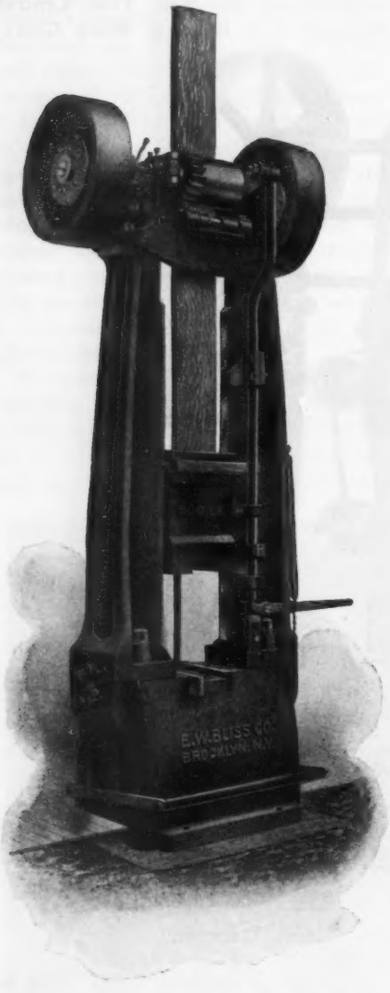


FIG. 1—DROP HAMMER WITH 600-POUND HAMMER.

These dies are operated in drop hammers the size of which varies according to the work to be done and ranges from a drop with a 50 pound hammer up to one with a 5,000 pound hammer. A drop hammer with a 600 pound hammer is shown in Fig. 1. One-half of the die is fastened to the ram or hammer which moves vertically between two guides, being raised by means of friction rolls which are at all times under the instant control of the operator. The other half is in the anvil or base of the hammer. The ram is raised until automatically released, the height of the fall being controlled by adjusting the dogs on the side rod. When these dogs release the lifting rolls, the hammer instantly falls, striking with the upper half of the die the bar or billet which has been previously heated in the furnace. By a number of rapid blows the bar or billet is quickly hammered into a shape that will distribute the metal in such a way as to secure the best results in the forming die from both an economical and operating point. The piece in this shape is now placed over the finishing form in the die, and, by a number of blows, forced into the impression in the die and punch. Often it is necessary to reheat the stock between these operations, this of course depending on the nature of the work, and the stock used.

A shallow space called the flash of the die is cut on the face of both die and punch around the finishing impression. Into this flash the surplus metal of the piece being forged is forced. Due to the existence of this surplus metal, or fins, the forging as it comes from the drop hammer has what is technically called a "flash,"—which forms where the upper and lower parts of the die meet. After the forging is taken from the drop hammer, this flash is trimmed in dies operated in a type of press such as shown in Fig. 2 conveniently placed alongside the hammer. The character of such trimming is such that cut-back or over-hanging frames are often found more convenient than those of the straight-sided pattern illustrated in Fig. 2. This overhanging type is particularly adapted for trimming long drop forgings, as the stock can readily be fed from right to left through the throat of the frame.

When trimmed the forging is either annealed or pickled, or, if necessary, both, after which it is ready for machine operations if there be any.

The endurance and effectiveness of drop hammers depend in no small degree upon the proper ratio between the weight of the base and the weight of the hammer. It has been demonstrated that 12:1 is decidedly better than a smaller ratio, and that the best results are obtained with a ratio of 15:1 or 16:1 with all parts made in proportion. The extra cost of the heavier machine is more than compensated for by the resultant improvement in quantity and quality of the finished product and by comparative freedom from breakdowns.

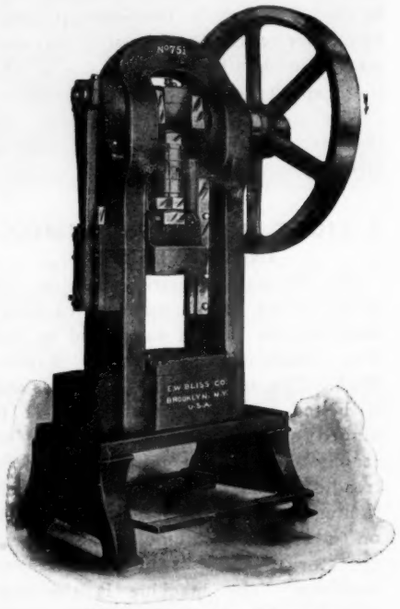


FIG. 2—TRIMMING PRESS.

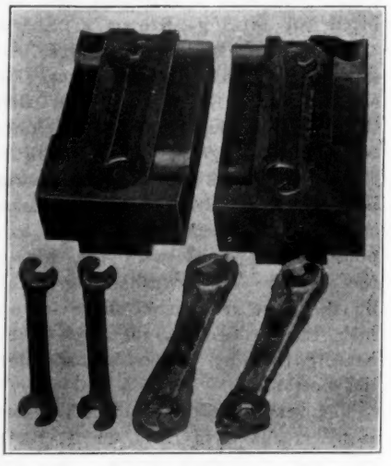


FIG. 3—DROP FORGING DIES AND THEIR PRODUCT.

For the successful operation of drop

hammers it is very essential to have a good foundation; either one of the two types illustrated have been found to give good results. The wood cushion foundation as shown in Fig. 5 is used where the bottom is only fair and where jarring the surrounding buildings is objectionable. The solid concrete foundation shown in Fig. 4 is recommended as best when it can be used. In deciding the depth of foundation of either of the above types, care should be taken to determine the best point to stop the excavation. Bed rock is the best bottom, cement gravel next, and then a strata of sand or clay, say 4 feet thick, and in its original undisturbed condition. The trouble with sand or clay foundations is, that on account of the heat of a drop forge shop drying the soil and the continual jar, they are apt to shift provided they get on outlet in the shape of other near by excavations. By spreading the bottom of the foundation the desired result is sometimes obtained without going very deep, but for any size of drop hammer the concrete should not be less than 4 feet thick, whether the wood cushion is used or not.

The forgings produced by the drop hammer methods are uniform, there being no possible chance for variation, as they are all formed in the same die and under similar conditions. Some of the advantages from this method can be seen from the fact that difficult shapes can be readily, rapidly and accurately made, leaving desired allowances for machining. Where no machine finish is required the smooth, glossy, polished and accurate surfaces left from the dies answer for such articles as handles, wrenches, cranks, connections and bossed parts.

The field for the successful and economical application of this product is large, in fact, almost unlimited, the greatest demand and possibilities being in the manufacture of fire-arms, sewing machines, bicycles, automobiles, engines, railway and railroad cars and equipments in general machinery. The economy in the use of drop forgings has been recognized to such an extent that in many instances steel castings are being replaced by drop forgings where the strain requirements are great and the part requires considerable machining since by their use the amount of machine labor necessary is very materially reduced in addition to overcoming the loss consequent upon castings developing bad spots when the work on them is half finished.

We are indebted to the E. W. Bliss Co., 8 Adams St., Brooklyn, manufacturers of drop forging machinery, for the illustrations and data contained in the foregoing article.

The Woodstock Iron & Steel Corporation has almost completed relining its blast furnace at Anniston, Ala.

THE INDUSTRIAL POSITION IN GERMANY.

It looks as if Germany were on the verge of an industrial crisis in the iron and steel trades similar to that which occurred a few years ago. The policy of the various syndicates, the organization of which has been brought to the point of perfection in the Fatherland, has operated most adversely in respect of general trade conditions ever since the reaction from the recent period of inflated prices and exaggerated demands began to make itself felt. In America, where the full brunt of the retrogression in trade fell with sledgehammer-like blows, drastic measures were taken to stem the current of production with a view ultimately of bringing about a rehabilitation of confidence when ordinary demands reasserted themselves. It may be questioned whether from its broadest aspect this policy was a wise one, but at any rate it was in some sort successful, while the German syndicates simply followed the example of the ostrich, and, sticking their heads in the sand, declared that everything was well. Now the iron and steel trade of the Fatherland is face to face with a serious crisis. The Düsseldorf Pig-iron Syndicate has been broken up, and although there are still chances that a syndicate to cover the whole of Germany may eventually be constituted, the outlook in this respect is by no means brilliant. It is difficult to understand also how the other syndicates, which are so closely bound up with the pig-iron syndicate, can continue.

The dissolution of the pig-iron syndicate seems to have been precipitated by the withdrawal of the Nieder Rheimische Hütte, followed by a similar action on the part of the Siegerland Syndicate, which hitherto had sold its product through the Düsseldorf Syndicate. The entire failure of the syndicate to recognize the reactionary trade influences at work have led to the accumulation of an enormous surplus of pig iron, the disposal of which can scarcely be attended by other than a dislocation of prices. Had the syndicate grasped the situation boldly, cut down output, and reduced prices, it is quite likely that the industrial position in Germany would now be showing signs of improvement. As it is, semi-paralysis overhangs the German iron industry, and the future is regarded with apprehension. —*The Ironmonger*, London.

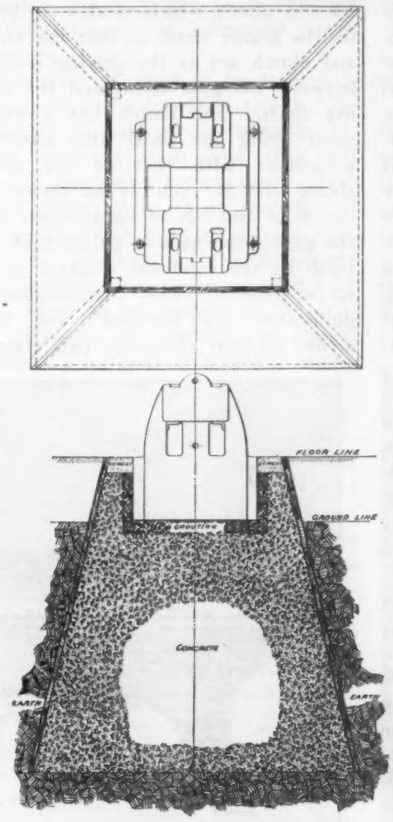


FIG. 4—SOLID CONCRETE FOUNDATION.

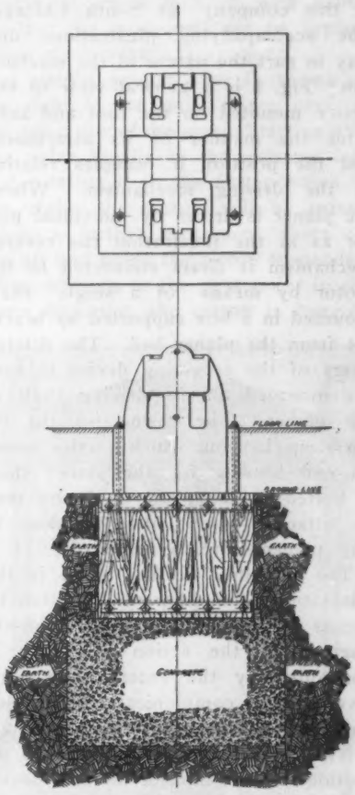


FIG. 5—WOOD OR TIMBER FOUNDATION.

If Governor Guild accepts the suggestion of the Lowell, Mass., board of commerce, a conference of New England governors will be called to consider an earnest effort to promote the interest of New England.

MECHANICAL REVERSING DEVICE.

A mechanical reversing device, among other uses particularly adapted to reversing planers is being brought to the attention of the trade by the Conklin Mfg. Co., Chicago, and is in operation on a planer at the shop of this company at South Chicago. The accompanying illustrations display in part the nature of the mechanism. Fig. 1 is a general view of the device mounted on the tool and indicates the manner of its attachment and the position it occupies relative to the driving mechanism. Where the planer is driven by individual motor as in the illustration the reverse mechanism is direct connected to the motor by means of a single shaft mounted in a box supported by brackets from the planer bed. The driving gears of the reversing device in turn are mounted on the driving shaft of the planer. The casing for the reverse mechanism, which carries inside an end bearing for the planer shaft is bolted to the planer bed and may be attached with entire freedom to any planers already installed.

The principle of the device is the adaptation of a differential motion by means of a screw spiral and a disengaging nut the action of which is controlled by the external reversing levers and is communicated to friction clutches that thrown in alternately drive the planer shaft in opposite directions. The interior of the device is shown in Figs. 2 and 3. Fig. 2 is a view looking down into the casing with the top removed and shows the shaft from the motor at "A," the planer driving shaft at "B," the gears for backward stroke of the platen at "C" and the gears for driving on the cutting stroke at "D." The drums are shown at "E," and the friction clutch at "F." The spur gears meshing with "C" and "D" are rigid with respect to the respective drums shown but are independent of the planer driving shaft except as they are thrown in or out by means of the screw and engaging nut and friction clutch. The arrangement of the bevel gears shown gives to the respective spur gears their primary motion in opposite directions.

Slotted rings are shown encircling the drums. These move along the drums subject to the shifting of the external levers which are provided with a pin that operates in the slots of the rings. These slotted rings control the engaging of the nut with the screw in the following manner.

The screw spiral is a V-thread cut in a sleeve which is feathered on the planer driving shaft but is free to move along the shaft. This screw sleeve is rigidly connected with the friction clutch which is also feathered on the planer shaft so that the sleeve and clutch act as the driving medium between the gear drum and the driving shaft. The clutch has a movement along the shaft also which is coincident with that of the screw sleeve and is such as to throw the clutch in and out of engagement with the gear drum as it is pulled back and forth by the rigid nut working in the screw thread. This arrangement is duplicated for forward and back stroke so that there are two clutches and two screw sleeves and two engaging nuts, each set working in opposite directions. The nut which consists of a threaded block is free to move only radially in and out of engagement revolves with its drum and is held in the thread of the screw by means of a spring. A finger or lever engages with the nut and is pivoted so that when the slotted ring on the drum is shifted over the end of the lever, it is forced down and raises the nut against the spring and out of the screw. This leaves the clutch driving the shaft free to be drawn out by the action of the screw at the opposite end.

The entrance of the nut into the thread is very easy and as a result the entire operation of the device is smooth and the wear on the various parts is a minimum. It is apparent that with the driving shaft revolving at full speed in one direction, throwing the nut into the sleeve at the opposite end will exert the maximum pull on the clutch to give a quick release. At this instant the difference in velocities of the shaft and the engaging nut which are moving in opposite directions is at a maximum. As the shaft slows down after the release of the clutch the difference between these velocities gradually decreases until the point is reached when the clutch begins to engage with the drum in which the active nut is fixed. At this point the clutch is thrown in very gently and the shaft picks up in the direction of the rotation of the nut very smoothly. The point at which the clutch begins to engage is the reversing point and it is evident that under this arrangement an extremely gentle reverse is obtained. The difference between the shaft velocity and that of the nut decreases gradually until the clutch is pulled in tight when the shaft is running full speed in the reversed direction, the strain is off the nut and screw and the screw may be easily disengaged and the other thrown in.

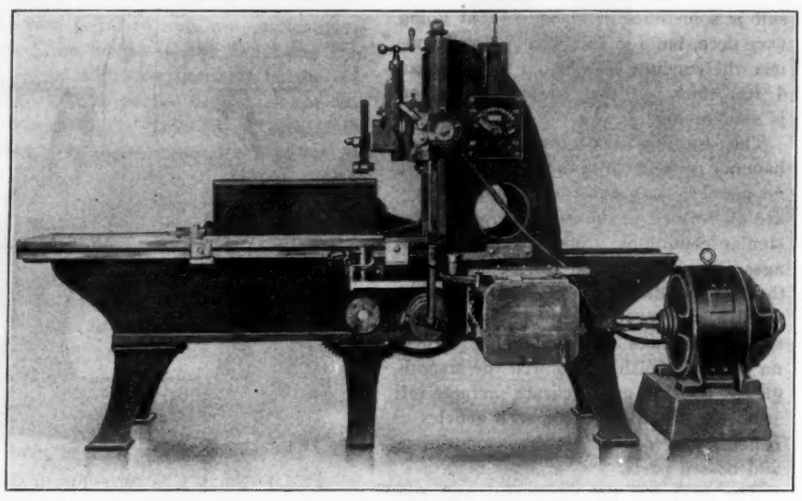


FIG. 1—AUTOMATIC REVERSING DEVICE FOR PLANERS.

In addition to the one driving gear shown, additional gears of suitable diamter are placed on the shaft to give several cutting speds. It is also claimed that with this gear planers with platens from 24 inches to 40 inches can be operated on the return stroke at a speed of 20 feet per minute which speed can be maintained regardless of cutting speed. The reversing mechanism operates in oil and can be applied to a very general class of reversing appliances.

TEXAS WORKS ORGANIZES.

Stockholders of the Grant Iron Works, Houston, Tex., effected formal organization July 8, electing the following officers: President and general manager, A. S. Grant; first vice president, H. A. Paine; second vice president, F. E. Pye; secretary and treasurer, William A. Grant. These

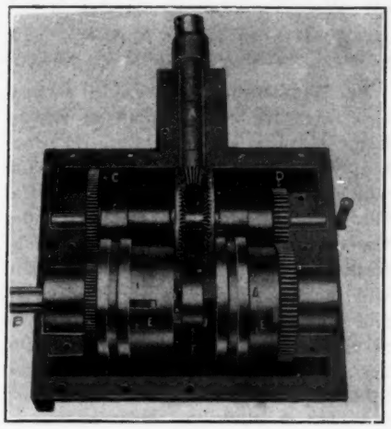


FIG. 2—GEAR MECHANISM OF AUTOMATIC REVERSING DEVICE.

officers, together with B. B. Rice, Fred A. Jones and H. L. Grant, constitute the board of directors. The buildings to be occupied by the Grant Iron Works are completed on the site formerly occupied by the Houston, East & West Texas railroad shops, and President Grant has been authorized to order machinery at once and start the plant. The company proposes to handle, repair and rebuild locomotives and cars, saw mill and other heavy machinery. It has a capital stock of $50,000.

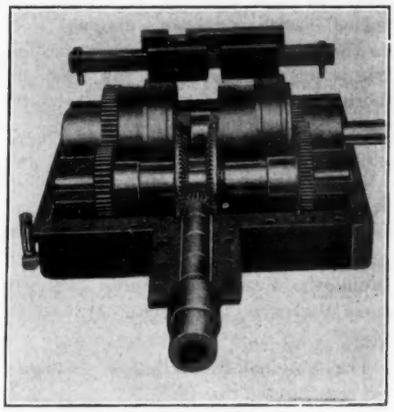


FIG. 3—GEAR MECHANISM OF AUTOMATIC REVERSING DEVICE.

A METHOD FOR THE LOCAL HARDENING OF TOOL STEEL.

A method of tempering cast or tool steel, by means of which a piece of any size and shape may be hardened at one or more points and the remainder left soft has been patented by W. A. Painter, 1515 Franklin street, Pittsburg.

The piece of steel to be treated is first partially enclosed or shielded by a flexible covering of any suitable material, such as sheet iron that will stand a hardening temperature. This shield covers only those portions of the article that are to remain soft, while the portions to be hardened are left exposed. The covering should be fitted close to the surface of the article, following its contour, and should be suitably fastened by rivets or wires. The thickness of the covering employed should be such as not to prevent a graduated heating and a graduated cooling of the piece being treated, thus avoiding a wide variance in temperature, which will produce a strain between the exposed and the covered parts. In practice, thickness of this sheet iron covering varies from 0.004 to 0.0625 inch.

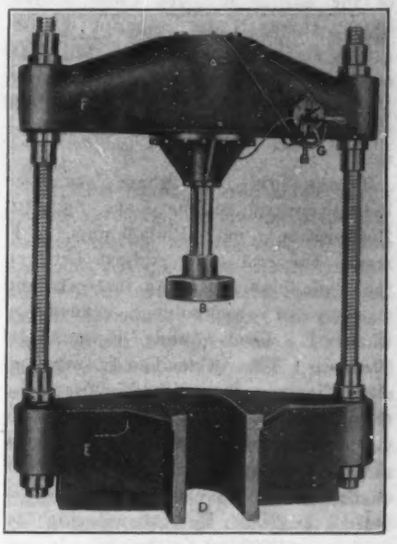
The next step in the process is to subject the partially protected article to the action of a proper hardening heat. This is done in the usual manner. The thin covering does not interfere in any way with the operation of heating to the desired temperature, the operator having perfect control and being able to accurately determine the proper heat. After the piece has reached the proper temperature for hardening, it, together with its covering, is immediately quenched in any suitable cooling bath, preferably clear water. Upon the removal of the covering after the quenching step just described, it will be found that the exposed portions of the steel will be hardened while the protected parts remain soft.

By enployment of this method of hardening, all risk of breakage, cracking and warping in the operation is practically eliminated. It is claimed that the area to be hardened can be defined to within 1/32 of an inch.

A NOVEL PNEUMATIC PRESS.

The Springfield Machine Tool Co., Springfield, O., has designed a pneumatic press which is shown herewith in Fig. 1. The machine consists essentially of two main castings connected by two heavy upright screws. These screws permit the upper frame F to be raised or lowered, according to the requirements of the work at hand. Cast integral with this upper frame or yoke is the air cylinder, 12 inches in diameter by 8-inch stroke. The pressure is transmitted to the work through a piston rod fitted at its lower end with a heavy shoe B, the center of which is filled with babbit so that the work will not be bruised when the pressure is applied.

A simple, unique valve G, shown on the right of the upper frame, controls the operation of the press. Starting with the valve handle at the extreme left, and rotating it to the first position to the right, the piston will be raised, while a further movement shuts off the air and holds the piston suspended. Then, passing to the next point in the same direction, the piston is lowered



A NOVEL PNEUMATIC PRESS.

and full air pressure applied to the work. If this pressure is not sufficient, a still further movement of the handle in the same direction throws into action a small, quick-acting, automatic air pump, which is placed on the top of the frame. This pump is capable of raising the pressure 250 pounds, when the normal pressure is 80 pounds.

The press, as shown without the pump, when applied with air at a pressure of air of 80 pounds per square inch, is capable of exerting a force of 8,800 pounds; when the pump is brought into action, the capacity is raised to 27,000 pounds, an amount amply sufficient for most classes of work within the machine's capacity.

Subscriptions aggregating $10,000 have been made to build a foundry at Alburtis, Pa., to manufacture water filtering machines.

SECURITIES AUCTIONED.

Control of Lake Superior Corporation Finally Lodges in Philadelphia.

With no opposing bid eight Philadelphia banks and trust companies, which a few years ago advanced money to the Canadian Improvement Co., bought in at auction, July 30, stocks and bonds of the Lake Superior Corporation having a par value of approximately $6,666,700. These securities have been held by the Philadelphia banking syndicate as collateral for securing notes of $1,611,000 against the improvement company, which matured and were in default June 1. The total purchase price was $1,592,687, practically the current market quotation. The sale which was held in the assembly room of the bourse involved these shares: 43,002 shares Lake Superior Corporation stock, $6 per share; $2,123,000 of the first mortgage collateral trust 5's of 1914, 60 per cent; and $243,500 of the income 5's of 1924, 25 per cent.

Taking title to these securities lodges control of the Lake Superior Corporation in Philadelphia. It marks the end of a contest between the Philadelphia banking interests and a party of stockholders headed by Chas. E. Orvis and Francis H. Clergue. The Canadian Improvement Co. was formed to facilitate the reorganization of the Lake Superior Corporation out of the wreck of the old Consolidated Lake Superior Co. in 1904. The government of Ontario aided the plan by guaranteeing an issue of $1,000,000 in bonds. In order to raise additional capital the company borrowed $2,700,000 in Philadelphia and in New York, giving securities of the Lake Superior Corporation as collateral. A portion of this amount was later paid, but Philadelphia banks still held $1,879,678. When the notes fell due in June, 1907, an extension was granted, with the condition that the grantors be allowed to vote the shares held by them in electing the directors of the Lake Superior Corporation. Refusal to permit this, however, at the next annual meeting, led to a long legal battle, in which Philadelphia interests finally won out.

J. Tatnall Lea, vice president of the Lake Superior Corporation, says: "The Lake Superior Corporation has nothing to do with the loan nor the sale of securities and it positively means no change in the directorate of the Lake Superior Corporation or in its control. And certainly it will not affect the interests of the general stockholders in any way."

WHAT STRIKES DO.

San Francisco Fabricators Fail to Get Contracts Even at Lower Prices.

(Special Correspondence.)

San Francisco, July 30.—Business in San Francisco has somewhat increased and is better now than it was last winter and spring, although we are in the midst of what is ordinarily the dullest season of the year. This statement, however, may not apply to the condition of the metal trades, and kindred branches. The manufacturers of structural iron in and near San Francisco complain of lack of business. Immense quantities of structural and ornamental iron is used in San Francisco in reconstruction work, but the home manufacturer furnishes very little of it. The bulk of structural iron comes from other places, mostly from the east, and some from places on the north Pacific coast. San Francisco and the cross-bay towns, with their large plants and superior equipments, pick up some odd jobs, while the large orders are sent east. The California Metal Trades Association, in its July bulletin, thus expressed its sentiments on this point: "Every day contracts are awarded to eastern and north Pacific coast shops and to a particular one in a certain southern California city that should be given to local shops." While the local shops are better able to fill the orders at present than they have ever been, and while it can not be charged that local property owners, contractors, builders and architects are less patriotic than they were, and discriminate against San Francisco, or purposely deprive home industry of local patronage, they simply will not risk placing orders with local manufacturers, fearing a repetition of the experiences of last year, street car and other strikes causing vexatious delays. Structural iron can be manufactured in San Francisco cheaper than it can be brought from distant points, owing to the freight, but contractors refuse to take chances as to time of delivery.

Business is improving, but it has not resumed activities equal to those which made things fly until about one year ago. According to the statistics compiled by the state labor bureau and the University of California, there are fewer persons idle at present than during the past 12 months. April, 1908, shows the largest number of unemployed persons since the beginning of the business depression, May, 1907.

Joseph T. Valentine, president of the International Iron Molders' Union and vice president of the American Federation of Labor, is here trying to settle the dispute between rival organizations of boiler makers, and to smooth the path for the bottle caners, that they may return to work after many weeks of idleness caused by strike against a reduction of wages.

An Engineering Course.—In accordance with its general plan of expansion, Marquette University, Milwaukee, will add a course in engineering which will be opened next September. The department will be under the charge of Prof. John C. Davis, formerly of Cornell University, and will include courses in electrical, civil and mechanical engineering. Six or seven instructors will assist Prof. Davis and the course will cover a period of two years' training.

Pope Reorganization.—The Pope Mfg. Co., Hartford, Conn., which went into the hands of receivers Aug. 13, 1907, was reorganized July 30. The new capital will be $2,500,000 preferred stock and $4,000,000 common stock. The new company plans to purchase the entire property and will operate the factories in Hartford and in Westfield. It is expected there will be enough cash, at the time of the transfer of the property, to pay all creditors in full and an equitable part of the expenses of the receivership.

A friendly suit was begun July 31 in the court of chancery at Newark, N. J., to restrain the United States Cast Iron Pipe & Foundry Co. from paying the quarterly dividend of 1¾ per cent on its preferred stock, due Sept. 1, it being contended that the company's earnings were insufficient to warrant the payment. The suit is intended to insure full legal authority to protect the directors who recently declared this dividend.

The Bucyrus Co., South Milwaukee, Wis., manufacturer of dredging and excavating machinery, will give its 2,500 employes an outing Aug. 8 at Waukesha Beach. Chartered cars will carry the party from South Milwaukee.

The National Enameling & Stamping Co. has signed the 1908-1909 wage scale with the Amalgamated Association of Iron, Steel & Tin Workers for all the departments of its several plants.

MEXICAN INDUSTRIES

Are Suffering from Depression—Prospects of Iron Development.

Mexico City, July 24.—The so-called revolution in the north of Mexico has ended completely and suddenly as such affairs have a habit of doing under the stern hand of President Diaz. In fact, it was hardly more than a bread riot caused by the scarcity of work in the mines and on the haciendas and the ever present political agitators seized upon it as a hook on which to hang their continued opposition to the government. It is over and many of those concerned and some others will never lead another such cause, at least not in this world.

The general business conditions in Mexico continue quiet, partly due to local financial causes and largely to the suspension of activity in mining and other development enterprises owing to the failure of money to come from the United States as it did a year ago and before. There is a prospect of considerable resumption in the mines as the companies are installing economies of operation and ore treatment that will enable them to make a profit even on a 50 cent basis of silver, which is in most of the districts the chief metal produced.

The successful financing of the merger of the trunk line railroads under a guarantee by the government of the new securities has raised the question of the early inauguration of activity in railroad building and in the improvement of the existing lines. The National, one of the absorbed lines, recently placed an order for a large amount of rails with the Monterey plant and now it is announced that the Central, also included in the merger, has ordered 10,000 tons of rails from the United States. E. N. Brown will be the head of the merged roads which will be known as the National Railways of Mexico.

Negotiations are under way for a new deal in regard to the iron deposits at Union de Tula in the state of Jalisco. These belong to the Cocuera family of Guadlajara and in 1903 were leased to Ralph Beach for five years. Lately little has been done at the plant, but the present deal contemplates operation on an enlarged scale. There are several large deposits of iron ore in the same locality as those of Tula. One of these nearer the Pacific was purchased some time ago by Duluth parties who still own it.

The announcement of the discovery of coal in the state of Jalisco in large quantity and of grade equal to the coal from the north of the Republic, the sole source of local supply at present, may have an important bearing on the iron development of the west coast region. The coal deposits are being examined and will be extensively exploited if the expectations of the owners are realized.

Nothing is being done at the present time with the immense iron deposits in the state of Guerrero in the south of Mexico. Some of these were taken over by a company promoted by J. J. Moylan, but since his death about two years ago, no attempt has been made to explore or develop these deposits. The ore was reported to run 68 per cent Fe and to exist in great masses above the surface of the ground. These deposits are located about 40 miles from Balsas station, the terminus of the southern extension of the Central railway from Mexico City and 35 miles from Acapulco, the port on the Pacific. Yet more extensive deposits exist near the mouth of the Rio Balsas and close to the ocean. Nothing has been done to utilize this deposit either. Some time ago it was investigated by an agent of Japanese interests, it was claimed, with the view of shipping the ore to Japan. The deposit is owned by a Mexican company. A report was made on it by R. H. Anderson, an English engineer, some time ago.

BOOK REVIEWS.

"Drawing Instruments," by Walter G. Stephan, M. E. McGraw Publishing Co. New York. 108 pages. Illustrated. 5 x 7½ inches. Supplied by THE IRON TRADE REVIEW for $1.00.

"This treatise is intended to aid in the selection of drawing instruments and to discuss their use and abuse." Mr. Stephan thus succinctly states the purpose of his book in the opening sentence of the second paragraph. The work is all that it purports to be and as completely fills a need heretofore unsupplied. It is characterized by a clear, condensed style that wastes no words and compresses a large amount of real information into a comparatively small space.

A feature of the book is that it includes not only explicit directions for the selection of proper drawing instruments, together with instruction in their correct use, but also presents valuable original matter showing how the various instruments, T-squares, triangles, scales, etc., may be tested and kept accurate.

Following a brief introduction and a chapter on "How to Purchase Drawing Instruments," the book is divided into 27 brief chapters, each of which describes the characteristics, uses and care of one of the common drawing instruments. Special attention is devoted to the universal drafting machine, concerning which Mr. Stephan says: "Since the perfection of tracing cloth and the blue print, no single item has so completely changed the work on the drafting board as the machine which is the subject of this chapter. * * * It does away entirely with T-square, triangles, scales and protractor, and is more accurate than those tools usually are."

The work is appropriately concluded with a short chapter detailing the general principles of modern drafting room practice.

"Curves for Calculating Beams, Channels and Reactions," by Sidney Diamant, E. E., New York. McGraw Publishing Co. 10 x 7¼ inches. III + 13 page + 25 plates of curves. Cloth. Supplied by THE IRON TRADE REVIEW for $2.

Graphical methods, used either in the original or check computation of the size, loading, spacing and reactions of beams for floors, roofs, etc., are constantly growing in favor over the more cumbersome analytic formulae. To meet this demand, Mr. Diamant has prepared a series of curves or charts, which offer a graphical means of selecting the proper channels or I-beams for supporting floors, roofs or other uniformly loaded structures.

The book opens with the deduction of the formulae from which the beam charts are constructed. Full directions for the proper use of the charts and for plotting new curves, should they be necessary, are given.

For convenience tables of live and dead loads for various classes of buildings, together with the properties of standard channels and I-beams are inserted.

The charts are divided into two groups. The first thirteen give the proper spacing and spans of standard channels and I-beams under uniform loads of from 80 up to 500 pounds per square foot, advancing by convenient increments. The last 12 charts give the reactions of beams with spans from 2 feet to 20 feet, spaced 1 foot to 6½ feet, when acting under uniform loads of from 80 to 400 pounds per square foot.

Any quantity involved in the proper selection of a beam, its spacing, span or safe loading, can be instantly determined from these curves. The charts are time saving, complete, simple, accurate, offer easy means for interpolation and would be of real service to anyone designing floors or roofs.

HANGING ROCK REGION.

Furnacemen Overhaul Stacks in Anticipation of Increased Demand.

Ironton, O., Aug. 3.—Furnacemen of this district are taking advantage of the lull in the market to get their plants thoroughly overhauled and in readiness for steady operation when conditions are more favorable. The stacks of the Sarah Furnace Co. and the Belfont Iron Works Co. are being relined while out of blast, and Rogers, Brown & Co. have a force of men at work painting and repairing the Union Iron & Steel Co. plant, which they recently acquired at master commissioner's sale.

The resumption of the steel plant and rod mill at Ashland, Ky., this week will doubtless mean putting into blast of the Belfont and Sarah stacks in the near future, as common interests control the properties and the product of the furnaces is taken by the steel plant.

The large new stack of the Ironton Iron Co. has not yet been put in blast, owing to market conditions, but the management anticipates conditions shortly that will warrant the baptism of the new furnace this month. It is probable that when this stack goes into blast, the Etna stack of the Marting Iron & Steel Co. will blow out for repairs, as it has had an unusually long and successful run.

Formal confirmation of the sale of the U. S. Engine Co. plant to the Parkersburg Machine Co. for $20,000 and of the personal property to several parties for $7,000 was concluded last week by T. A. Brown, the referee in bankruptcy, and distribution of the proceeds has been ordered.

The Davis Charcoal Co. office in this city was recently closed, owing to failure to locate Wilford J. Davis, president and manager of the company, who recently opened an office in New York City. Charcoal makers of this section lost quite heavily through the financial embarrassment of the company, against which a number of judgments were secured in the local courts. The office equipment was attached.

It is understood here that the plant of the Gallipolis Foundry & Machine Shops, recently destroyed by fire, will be rebuilt as soon as iron conditions show improvement. The loss is placed at $50 000 with insurance to the amount of $12,000.

The Scioto Mfg. Co., which will have as one of its products a spiral washboard, has organized at Portsmouth by electing E. A. Hodge, president; R. E. Waugh, vice president; W. R. Sprague, secretary; L. F. Lemon, treasurer; Albert Brooks, general manager. The company will install a plant in Portsmouth at once.

The directors of the Ironton Malleable Iron Co. at a recent meeting, organized by electing D. C. Davies, president; J. M. Barringer, vice president; H. H. Mittendorf, secretary. No attempt will be made to start the plant, which is one of Ironton's new industries, until the market picks up.

C. S. Reynolds and N. J. Dever, as receivers for the Ohio Stove Co. of Portsmouth, have filed their report of appraisement, showing the value of real estate and buildings to be $31,277.50; personal property, $33,240.33; total valuation, $64,517.83. Parties from Evansville, Ind., are negotiating for the purchase of the plant.

Fred C. Ketter has filed a report of appraisement as receiver of the Portsmouth Pressed Steel Co., which shows a total valuation of $17,638.26. The company's liabilities are $8,182.19. Under instructions from the court, the company's property has been advertised for sale, it having been agreed that it could not be operated to advantage.

At its last annual meeting the Belfont Iron Works Co. elected the following officers and directors: B. H. Burr, president and general manager; Robert Peebles, vice president; S. G. Gilfillan, secretary and treasurer. H. C. Burr, S. R. Steece, John Peebles and Thos. Parker complete the directory.

The Portsmouth Steel Co. has resumed operations after a shutdown for the annual inventory and repairs. The company has a number of orders ahead and prospects for a good run.

Henry Deatly, of Adams county, has applied for a patent on a new railroad spike, which is constructed with a pronged shank in a manner to expand or spread the prongs when the spike is driven home, thus preventing displacement.

The Clare Iron Co. has had a siding constructed from the B. & O. to its lime banks in Scioto county and will deliver its product to the Jackson Iron & Steel Co., which has purchased the entire output.

Spence, Smith & Kootz, of Parkersburg, W. Va., who have a plant for the manufacture of oil well tools, have installed a compressed air riveter and other machinery and will add to their output, oil well boilers.

GLOOMY NEWS

Comes From Across the Atlantic—Some Concerns Are Facing Ruin.

Office of THE IRON TRADE REVIEW,
Prince's Chambers, Corporation St.,
Birmingham, Eng., July 24.

The occurrence of the quarterly meeting recently furnished another opportunity to test business. The result could hardly be worse. The attendance was poor, and included representatives from Lancashire and the north of England competing with South Staffordshire for such small business as is to be had. No sort of agreement has been found possible to regulate this inter-district competition. The tin sheet trade is slightly better, but finished iron generally is parlous, many concerns not running more than half time, and for such iron as is made there is no profit. On all hands, there are reports of partial or temporary suspensions. The trade in wire, screws, chains, and small bars generally is bad. There is a slight improvement in galvanized sheets and it is possible that the association, which meets in London next week, may see its way to maintain the present standard of £12—10. In the steel line the position is practically unchanged. Germany is keenly competing for orders, and there is a considerable supply of billets from America. But foreign prices are so near to the British that the foreigner has little inducement to offer. The finished steel department is benefiting slightly by an improvement in structural engineering.

The tube trade agreement has definitely broken down with the result that prices have collapsed disastrously. In some cases prices have been reduced 25 per cent in a fortnight. Lists of quotations have gone by the board, and the buyer is now master of the situation. On the bulk of the new work, money is actually being lost. Some of the weaker firms are in a state almost of panic, and a desperate effort will be made to restore some sort of an understanding . Otherwise some of the firms will find themselves face to face with ruin. One of the effects of the combine was the ability of Tubes, Ltd., a well-known Birmingham firm, to make for last year a profit of £9,000, but a warning has already been given by the directors that the old reckless competition is about to recommence.

Among much that is depressing, some satisfaction is expressed that the last of the Clyde ship building strikes, of which we have had a succession since the beginning of the year, has come to an end.

Remarkable Rise in Coppers.

The dullness presaged by Monday's opening was dispelled the middle of the week by several factors which in the aggregate made for a continuation of the bullish tendencie. of the past several months. Among these were the favorable quarterly re, ort of the Steel Corporation wherein the earnings actually exceeded by $2,000,000 the most sanguine estimate; the satisfactory settlement for the time being of the Gould railroad troubles; two advances in the market price of copper metal; without mentioning supposedly favorable political news. At the same time there were not lacking bearish signs, one being the first increase of idle freight cars by over 5,000 since the reaction from the depression began last spring.

Monday the market opened moderately active but irregular and closed weaker. Tuesday and Wednesday, it was still irregular and rather inactive, but the close was higher. On Wednesday copper stocks began a remarkable recovery when the market price of the metal was given its first advance and reports of better trade conditions were announced. Thursday another rise in coppers brought them to the highest prices for the year, this affecting the general market so that it closed stronger on Friday. Saturday's opening was stronger and higher but a slight reaction was noted at the final hour. The average price of New York stocks for the week showed for the first time this year actual advances over prices quoted for the same period last year.

Money continued easy all the week, call money ruling from 1 to 1¼ per cent throughout although time rates showed a tendency toward stiffening during the middle of the week. New York exchange in the middle west showed that money for crop moving has not as yet been demanded of the eastern money marts by the west. In the present abnormally easy condition of the money market, the New York bank statement continues to arouse little interest. Last week's showing was somewhat better than the estimates, an increase of more than $4,100,000 in cash and an increase of a little more than $2,500,000 in surplus reserves. The total surplus now stands at $61,393,950 compared with $7,472,200 the same date last year. The actual report of clearing house banks showed loans decreased $444,700; deposits decreased $869,800; percentage of actual reserve, 29.38, a decrease of 0.09. Other New York banks showed loans increased $3,645,200; net deposits increased $2,715,900; percentage of reserve 36.6, an increase of 0.5.

Commercial failures for the week were 275, compared with 289 the preceding week and 182 the corresponding week last year.

The number of shares dealt in was 3,354,940, compared with 4,858,127 the previous week and 2,396,202 the corresponding period last year. Bonds exclusive of government bonds were sold to the amount of $14,558,000 compared with $23,466,000 the previous week, and $4,064,000 last year.

Copper Stocks.

New York.—Amalgamated Copper closed 77, a net gain of 3⅞.

Boston.—Butte Coalition closed 27½, a net gain of 1⅜; Calumet & Hecla closed 700, a net gain of 40; Calumet & Arizona closed 129; a net gain of 13; North Butte closed 85, a net gain of 8½; Quincy Mining closed 100, a net gain of 8.

Financial Notes.

The United States Steel Corporation has declared the regular quarterly dividend of one-half of 1 per cent on common stock payable Sept. 20, and 1¾ per cent on the preferred, payable Aug. 31; the Waterbury Co. of New Jersey, the regular quarterly dividend of 2 per cent on the preferred and 1½ per cent on the common, payable Aug. 1; the Waterbury Co. of West Virginia, the regular quarterly dividend of one-half of 1 per cent, payable Aug. 1; the Jefferson & Clearfield Iron Co., the regular semi-annual dividend of 2½ per cent on preferred, payable Aug. 15; the Flannery Bolt Co., Pittsburg, the regular quarterly dividend of 5 per cent, payable on Aug. 1.

THE LEADING INDUSTRIAL SECURITIES.

	Closing Quo. Aug. 1	Changes in Week	Date 1908 Ann. M't'g	Stock Outstanding	Dividend Basis	Dividend Last Declared	Dividend Date Last Div. Pay.
Allis-Chalmers	11	− ⅝	Sept. 3	19,820 000			
Allis-Chalmers pr	34	+ ¼		16.150,000	7 cum	1¾ Q.	Feb., 1904
American Can	5¾	.....	Feb. 3	41 233 300			
Am. Can pr	61	+1		41,233,300	7 cum	1¾ Q.	July, 1908
Am. Car & Foundry	89½	+ ¼	June 25	30,000,000		½ Q.	July, 1908
Am. Car & Fdy. pr	102	−1		30 000.000	7 n. c.	1¾ Q.	July, 1908
American Loc.	55¾	+2	Oct. 20	25,000,000	5	1¼ Q.	Aug., 1908
American Loc. pr.	107	+1		25 000,000	7 cum	1¾ Q.	July, 1908
American Ship	38	.....	Oct. 14	7 60 000	4	1 Q.	June, 1908
American Ship pr	100¼	.....		7,900,000	7 n. c.	1¾ Q.	July, 1908
Am. Steel Foundries	8	.....	Oct. 6	15 810 000			
Am. Steel Foundries pr	43	+3¾		17,240,000	6 cum	2½	Aug., 1904
Barney & Smith	45	.....	June 2	2.000,000	4	1 Q.	Sept., 1907
Barney & Smith pr	102	.....		2 500 000	8 cum	2 Q.	June, 1908
Bethlehem Steel	20	+1	April 7	14,862,000			
Bethlehem Steel pr	50	+2		14 988 000	7 n. c.	¾ Q.	Feb., 1907
Cambria Steel	36¼	− ⅛	March 17	45,000,000*	6	1½ S. A.	Aug., 1908
Cambria Iron	45¼	.....		8,468,000*	4	2 S. A.	April, 1908
Chicago Pneumatic Tool	24½	− ⅛	Feb. 17	6,145,800	4	1 Q.	Oct., 1907
Colorado Fuel	32⅞	+ ⅜	Oct. 19	34 235 500		3½	April, 1902
Crucible Steel	6½	− ⅛	Oct. 21	24,578 400			
Crucible Steel pr	47	+2		24,436,500	7 cum	1 Q.	Dec., 1907
Empire Steel	8	.....	Feb. 26	1,254,770			
Empire Steel pr	40	.....		2 500,000	6 cum	3 S. A.	July, 1908
Fay & Egan	100	.....	Feb. 18	1,000,000	6	1½ Q.	May, 1908
Fay & Egan pr	110			1,000 000	7 cum	1¾ Q.	May, 1908
General Electric	146¾	+1	May 12	65,167,400	8	2 Q.	July, 1908
Harbison-Walker	12	−1	Jan. 20	18,000,000		½	Oct., 1907
Harbison-Walker pr	70½	.....		9,6 0,000	6 cum	1½ Q.	July, 1908
International Pump	23½	+ ½	June 2	17,787 300		1	April, 1905
International Pump pr	77	−2½		13,835,000	6 cum	1½ Q.	Aug., 1908
Lackawanna Steel	36	+1	March 11	34,971 400			
Lake Sup. Corp	7	+1⅜	Oct. 7	40,000,000			
New York Air Brake	77¾	+1¾	June 18	8 012,500	8	2 Q.	Oct., 1907
Niles-Bement-Pond	130	.....	Feb. 5	8,000 000	6	1½ Q.	June, 1908
Niles-Bement-Pond pr	100	.....		2,000,000	6 cum	1½ Q.	May, 1908
Otis Elevator Co.	35	+1	March 16	6 156,600		1½ S. A.	April, 1908
Otis Elevator Co. pr	90	+2		5 449,500	6 n. c.	1½ Q	July, 1908
Penn. Steel	60	.....	May 11	10,770 000			
Penn. Steel pr	98	.....		16.5 0 400	7 n. c.	3½ S. A.	May, 1908
Pittsburg Coal Co.	12¼	− ⅛	Feb. 10	28.853 400			Nov., 1906
Pittsburg Coal Co. pr	44¾	.....		27,080,800	7 c.	1¾	April, 1905
Pressed Steel Car	33⅞	+ ⅜	Feb. 19	12,500,000		3	Aug., 1904
Pressed Steel Car pr	95⅛	+ ¾		12,500,000	7 n. c.	1¾ Q.	Aug., 1908
Pullman	168½	+1¼	Nov. 11	100 000 000	8	2 Q.	Aug., 1908
Railway Stl. Spring	45⅛	+3¼	March 5	13,500,000	4	2 S. A.	April, 1908
Railway Stl Spring pr	99⅛	.....		13,500 000	7 cum	1¾ Q.	June, 1908
Rep. Iron & Steel	21	.....	Oct. 21	27,191,000			
Rep. Iron & Steel pr	73¾	.....		20,416 900	7 cum	1¾ Q.	April, 1908
Sloss-Sheffield	62⅛	... .	March 11	10,000,000	5	1 Q	June, 1908
Sloss-Sheffield pr	98	.....		6,700 0 0	7 n. c.	1¾ Q.	July, 1908
U. S. Pipe & Fdy	24⅞	+ ⅜	June 24	12,500,000	4	1 Q.	Dec., 1907
U. S. Pipe & Fdy pr	72¾	+2⅛		12 500,000	7 n. c	1¾ Q.	Sept., 1908
U. S. Steel	45⅛	− ⅛	April 20	508,302,500	2 n. c.	½ Q.	June, 1908
U. S. Steel pr	109	+ ¾		360,281,100	7 cum	1¾ Q.	June, 1908
U. S. Steel 5'	100	+ ⅜		463,798 000	5	5 A.	.....
V on. Coal & Coke	60	.....	Nov. 17	9 073 880			
W inghouse Elec	78¾	+ ¼	June 24	28 933 200*	10	2½ Q.	Oct , 1907
W g house Air Brake	105	.....	Oct. 6	11,000,000*		2½ Q.	July, 1908

Par value of shares, $100, except those starred (*), $50

NEWS FROM MANY INDUSTRIES

New Buyers:—

The Pioneer Iron Works Co., Antigo, Wis., has been incorporated with a capital stock of $20,000 by W. S. Morgan, E. F. Horn and E. Hoiem.

The Oklahoma Machinery Co., Muskogee, Okla., was recently incorporated with $10,000 capital stock by J. A. Wylie, R. A. Wylie and C. W. Arnold.

William Steinbach, Oscar Koch Jr., and James G. Hammerschlag are the incorporators of the Steinbach & Koch Co., Milwaukee, machinery, with a capital stock of $12,000.

W. J. Morrison, John W. Nute, W. F. Newbert and others, are the incorporators of the Decatur Car Wheel Co., Atlanta, Ga., which was recently incorporated with a capital stock of $100,000.

A charter has been issued to the Stalnaker Iron Co., Pittsburg, with $50,000 capital. The incorporators are J. F. Robinson, Thomas A. Orr and H. D. Stalnaker, all of Pittsburg.

The Minneapolis Wood & Machine Co., Minneapolis, Minn., has been incorporated with a capital stock of $60,000. The incorporators are: Frederick W. Sears, Thomas McKiney, and others.

Carl A. Klinge, W. W. Culver and O. E. Buder are the incorporators of the Magnolia Stove & Range Co., Belleville, Ill., which has been incorporated with a capital stock of $30,000.

The Williamsville-Iron Mountain Ore Co., St. Louis, Mo., has been incorporated with a capital stock of $100,000. The incorporators are Marcus Marks, W. A. Melay and A. M. Christianson.

The Wiedenbeck-Dobelin Co., Madison, Wis., has been incorporated by Theodore E. Wiedenbeck, Charles W. Dobelin and H. J. Brunkhoff. The company has a capital stock of $100,000.

The Rockingham Foundry & Machinery Co., Rockingham, N. C., has been incorporated by W. A. Biggen, L. C. Sharpe and W. P. McRae. The capital of the company is $50,000 authorized and $8,000 subscribed.

Articles of incorporation have been filed by the Reliance Electric & Machine Works, Astoria, Ore., with a capital stock of $4,000. The incorporators include J. J. Kenny, H. W. Cyrus and Claude E. Hicks.

Articles of incorporation have been filed by the Twin City Boiler & Sheet Iron Works, Bristol, Va., to manufacture boilers, etc. The capital stock of the company is $15,000. The incorporators named are: Henry Ehret, president; I. P. Oakes, vice president, and J. G. Tilley, secretary. The company plans to erect a 50 x 100-foot building of mill construction to cost $1,200, and on Oct. 1 will open bids for plant machinery.

Charles E. Francis Co., Rushville, Ind., has filed articles of incorporation, to manufacture machinery and supplies, with a capital stock of $25,000. The directors are: Charles E. Francis, Harry G. Francis and George J. Griesser.

A charter has been granted the Central Foundry & Machine Co., High Point, N. C., through Wilkes McClave and G. A. McClave, of High Point, and E. W. McClave, of New York. The company has an authorized capital stock of $50,000.

Sargent & Co., New York, has been incorporated, with a capital stock of $100,000, to manufacture hardware, etc. George H. Sargent, Thomas J. Atkins, Henry B. Sargent, No. 151 Leonard street, New York, are the incorporators.

Articles of incorporation have been filed by the Randerson Perfect Piston Packing Co., Albany, N. Y., to manufacture piston packing devices, with a capital stock of $100,000. John P. Randerson, 755 Madison avenue, Nannie R. Randerson, 755 Madison avenue, Joseph A. Lawson, Tweedle building, all of Albany, are the incorporators.

The United States Apparatus & Instrument Co., Fall River, Mass., has been granted a charter with $10,000 as the authorized capital stock. The incorporators are: President and treasurer, Louis Poster; clerk, William J. Jones, both of Boston.

The Clark Steel Hoop Co. has received a charter in which these incorporators are named: S. A. Rinn, J. A. Weber, E. C. McKibben, J. M. Grubb, Lon Pantall, J. B. Eberhart and H. E. Bowers, all of Punxsutawney, Pa., where the company will locate.

A charter has been granted the National Machine & Tool Co., Boston, with a capital stock of $130,000. The officers named in the charter are: William H. Gameron, Boston, president; Lucius F. Arnold, Providence, R. I., treasurer; Everett H. Hadley, Boston, clerk.

Harry Rosenbaum Iron Works, New York, with $5,000 capital, has been incorporated by Harry Rosenbaum, 422 Brook avenue, Bernard S. Deutsch, 1667 Washington avenue, and Samuel B. Pollak, 261 Seventh street, all of New York. The company will manufacture metal goods, fire escapes, etc.

Articles of incorporation have been filed by the Anglo-American Appliance Co., New York, to manufacture and deal in automobile, railway and engineer's supplies, etc., with a capital stock of $25,000. The incorporators include George Glynn, 642 Amsterdam avenue, New York; Cornelius Scully, Newark; Henry P. Burr, 157 Clinton street, Brooklyn.

Chas. C. Ruthrauff, 42 Broadway, Wilbur B. Ruthrauff, 45 West Eleventh street, John H. Miller, 2 West Twenty-ninth street, all of New York, are the incorporators of the New York Steel Monolith Co., New York, which has recently been incorporated with a capital stock of $100,000, and will manufacture fireproofing material, etc.

A charter has been granted the Elevator Repair & Supply Corporation, New York, to manufacture machinery, tools, devices, etc. Geo. C. Gaucher, Roselle, N. J.; Ernest Radthe, 9 Mill street, Brooklyn; Theodore Eskilson, 1142 Intervale avenue, The Bronx, are named incorporators. The company has a capital stock of $20,000.

New Construction:—

The J. I. Case Threshing Machine Co., Racine, Wis., is erecting a large and modern warehouse at its plant.

J. H. Jensen is erecting a foundry and machine shop on West Forest street, Salt Lake City, Utah.

Work is progressing on a new 100 x 100-foot machine shop which is being erected by the Irwin company at Berlin, Wis.

The Philip Pressed Steel Pulley Co., Philadelphia, has taken out a permit for the construction of a factory at Fourth street and Glenwood avenue, 78 x 170 feet, to cost $7,000.

The Holland Furnace Co., Holland, Mich., advises that the addition to its plant will be of brick, 75 x 140 feet, and that it will not be in need of any additional equipment at the present time.

The Southern Mfg. & Supply Co., Chattanooga, Tenn., has decided to enlarge the main factory building now under construction from 120 x 120 feet to 120 x 200 feet of concrete and steel construction with galvanized iron roof.

The contract for the brick addition to the New York Central railroad boiler shop of the locomotive repair plant at Depew, N. Y., has been awarded to B. I. Crooker, of Buffalo. The addition will be 75 x 161 feet and will cost $25,000.

An extensive addition to the mill office of the Youngstown Sheet & Tube Co., in East Youngstown, O., has been planned and will be erected

shortly, to provide larger quarters for the mill superintendents and clerks.

The United Iron Works, a branch of the Iola, Kans., plant, and the Springfield foundry, have established a plant at Sapulga, Okla., and have been shipping machinery to that point. Warehouses and offices will be located at Sapulga.

The Sioux City Iron Co., Sioux City, Ia., is building a comfortable office in the Plymouth block, preparatory to removing there from its present offices in the Union depot. This will bring the offices and warehouses in the same building.

Wm. B. Scaife & Sons Co., Pittsburg, has received contract for the new steel frame buildings required for the extension to the plant of the Driggs-Seabury Ordnance Corporation at Sharon, Pa.

C. E. Anderson, proprietor of the Variety Machine Works, Laporte, Ind., has purchased a site in Elmwood, Ill., and will remove the shops to Elmwood shortly. The Variety Machine Works is equipped to do general machinery work and blacksmithing.

The Stockham Pipe & Fittings Co., Birmingham, Ala., steam fittings, soil pipe and fittings, advises that it expects to rebuild its foundry within the next 30 days, replacing the building destroyed by fire. The new foundry will be 100 x 120 feet. No new equipment will be required at this time.

The Bown Machinery Co., Battle Creek, Mich., manufacturer of special tools, tool holders, etc., has removed into new quarters at 137 West Main street. For the past two years it had been located with Rathbun & Kraft, but increased business demanded imperative removal to more extensive quarters.

The Dobbie Foundry & Machine Co., Niagara Falls, N. Y., has entered into an agreement with a Chicago engineering firm, through which it will enter a new field in the manufacture of locomotive cranes. The Niagara Falls plant will be enlarged immediately to supply the necessary additional facilities for manufacture.

The Hazard Mfg. Co. is completing improvements and additions to the plant at Wilkes Barre, Pa., which have been under way for nearly a year. They include the erection of a new wire rope mill and a power plant. The dimensions of the wire rope building are 50 x 165 feet, brick and steel construction, basement and four stories. The power plant will have a capacity up to 1,200 horsepower with the possibility of still further extending it up to 1,800 horsepower.

The new plant of the Herman Pneumatic Machine Co., Zelienople, Pa., has been put in operation and is employing 50 men. The new building is 40 x 100 feet and six pneumatic molding machines have been installed. Work is now in progress on one of the largest molding machines ever constructed, 5 x 14 feet and weighing 3,000 pounds.

The J. Nelson Mfg. Co., Beaver Dam, Wis., has purchased a tract of land of five acres in North Milwaukee and will establish a foundry employing 150 men. Three frame buildings, each to be one story and 70 x 200 feet, will be erected, and it is expected that the plant will be in operation by fall. The company is capitalized at $150,000.

The Canadian branch at Hamilton, Ont., of the Berlin Machine Works, Beloit, Wis., is being equipped with machinery, fittings, etc., and is expected to start operating early this month. Four large buildings have been erected on a tract of 40 acres, where the molding sand, clay, etc., for foundry use is also found. Sixty-five per cent of the raw material entering into the plant's manufacture is obtainable in Hamilton.

The Great Falls Iron Works, Great Falls, Mont., has begun erecting a modern machine shop to cost $15,000. The shop will be 65 x 80 feet, 30 feet high, of brick and steel construction. Mullen & Co., Pittsburg, have the erecting contract, and Worden & Allen, Milwaukee, the steel frame work contract. Machinery of the latest design will be installed as well as an electric crane, whose runway will extend the entire length of the building The building will be lighted by electricity.

General Industrial:—

The Gallipolis Foundry & Machine Co., Gallipolis, O., has reduced its capital stock from $30,000 to $15,000.

The Solid Steel Casting Co., Chester, Pa., has filed notice of an increase in bonded debt amounting to $202,000.

The H. G. Trout Co., Buffalo, N. Y., advises that the fire recently reported at the King Iron Works was of insignificant proportions.

The Columbus Iron Works Co., Columbus, Ga., has filed amendment to its charter, increasing its capital stock from $120,000 to $600,000.

The Buckeye Electric Co., of Cleveland, with a capital stock of $400,000, has been authorized to operate in Illinois with a capital of $6,000.

The Co-operative Foundry Co., of Rochester, N. Y., with a capital of $200,000, has been authorized to operate in Illinois with a capital of $10,000.

The Rock River Machine Co., Janesville, Wis., reports a fair volume of orders coming in regularly, showing that business is picking up along the machine line.

W. H. Power, trustee for Sayre Bros., Inc., Phoebus, Va., advises that as yet no steps have been taken toward rebuilding, following the damage by fire recently sustained by the plant.

Manager D. S. Brookman, of the Wellsville, O., works of the American Sheet & Tin Plate Co., advises that newspaper reports of the recent fire were grossly exaggerated, and that the plant suffered no loss.

The offices of the Pioneer Steel Co., Rockford, Ill., which have been maintained in an office building heretofore, are being removed to the plant, where commodious quarters have been provided.

The Foyer Steel Stamping Co., Cleveland, has increased its capital stock from $40,000 to $100,000 and changed its name to the Ohio Steel Toy Co. W. J. Springborn is president and Harry D. Baker is secretary of the company.

The Sieg Iron Co., Davenport, Ia., has filed papers of incorporation. The old corporation had expired and the reincorporation is for another 20 years. The officers of the company are: President, James W. Bollinger, and secretary, Fred Yetter.

The Ft. Wayne Foundry & Machine Co., Ft. Wayne, Ind., formerly engaged in building gas engines and boilers, has added a line of structural work and recently took an order for 35 fire escapes from the school board, etc., aggregating $50,000.

The Chicago Iron Store, whose increase in capital stock was recently noted, advises that the increase was made for the purpose of taking over the wagon and carriage material trade from Kelley, Maus & Co. There will be no expenditure for building or improvements.

The Williams Foundry & Machine Co., Akron, O., advises that the reorganization of the company recently noted will make no material change. It was formerly incorporated in West Virginia, but wishing to increase its capital to correspond with the increase in its assets, through its pur-

chase of the Akron Clutch Co., it was thought best while making the change to reincorporate under Ohio laws.

The Kingsford Foundry & Machine Co., Oswego, N. Y., has received from the Oswego water department a contract for three horizontal tubular boilers of 150 horsepower each, to be used at the new power station. The award was made for Scotch boilers at $7,775. The Des Moines Bridge & Iron Co.'s bid of $2,800 was accepted for the construction of a 5,000-gallon steel water tank.

Under a court order recently issued, the final sale of the buildings and entire stock of the Glazier Stove Co. at Chelsea, Mich., will take place shortly. The sale was ordered upon petition of the Detroit Trust Co., and in pursuance of a mortgage held by the trust company upon the stove company's plant.

The capital stock of the Union Foundry Co., Anniston, Ala., has been increased from $100,000 to $200,000. The additional capital stock has been subscribed by the present stockholders, and the plant will be enlarged immediately. The company advises that the work on the foundry extension has been started and that practically all the machinery to be used in the new addition has been purchased.

The Toledo Machine & Tool Co., Toledo, O., has just shipped two carloads of punch presses and drop hammers to Dayton, O., and a carload of drop hammers to Philadelphia. The company is also in receipt of an order for a punch press weighing 110,000 pounds from a Massachusetts concern, and another punch press weighing 90,000 pounds from a New York company. In addition to these the company has received an order for seven large punch presses for a manufacturing concern in western Pennsylvania. The company has not been operating with less than 60 per cent of its full force since the panic of last fall, and is now turning out about 80 per cent of its normal capacity.

A meeting of the stockholders of the National Steel & Wire Co. was recently held at Boston at the invitation of George Palmer, of London, representing the London stockholders' committee, with a view to forming an American committee to co-operate with the London interests in an endeavor to protect the stock and bondholders. The London representative declared that of the $5,000,000 in cash put into the company, $3,000,000 came from England. The English plan of reorganization contemplates that an American stockholders' committee shall have power to assess preferred stockholders $2.50 a share to meet the expenses of the committee. The Boston meeting chose this committee to report on the expediency of the plan: Arthur P. Silsbee, Wm. Faxon Jr., Robert B. Metcalf of Boston, and John Craig, of Toledo.

Fires:—

The buildings of the Enterprise Foundry Co., Sackville, N. B., were set on fire by lightning July 30 and severely damaged. The loss is estimated at $50,000.

The tool storehouse at the Lackawanna Steel plant, Buffalo, N. Y., was damaged to the extent of about $8,000, July 21.

The plant of the Eagle Brass Foundry & Machine Co., Cleveland, was severely damaged July 30 by fire, said to have been caused by crossed electric light wires. The loss will reach probably $15,000.

The new car wheel shops of the Bass Foundry & Machine Co., Ft. Wayne, Ind., were damaged, July 18, to the extent of about $1,000. The fire started in the roof near cupola No. 7, burning out two motors and the elevator shaft and practically destroying the roof.

Trade Notes:—

The Standard Sanitary Mfg. Co. of Pittsburg, manufacturer of sanitary plumbing apparatus, has leased the ground floor corner of the Pierce building, Fourth and Chestnut streets, St. Louis, and will establish there a branch to cover the western and southwestern field.

Colne & Co., 11 Broadway, New York City, formerly Powell & Colne, contractors for the erection of Tropenas steel casting plants for over 10 years, have just completed an equipment at the Mare Island navy yard, San Francisco, which is now in successful operation. This makes 33 converters installed by them. The firm reports as a sign of revival of business several inquiries lately from existing and contemplated foundries.

TRADE PUBLICATIONS.

BEARING METAL.—A recent booklet issued by the Glacier Metal Co., New York, describes the nature and uses of an anti-friction bearing metal, and contains reports of careful friction tests of this metal.

MILLING MACHINES.—The Pratt & Whitney Co., Hartford, Conn. This catalog describes the new spline milling machine now offered by Pratt & Whitney. The machine is unique, and by its use many difficult jobs of slotting and milling heretofore performed by older and expensive methods can be now executed cheaply and rapidly. The new tool and its uses are fully described in the catalog, which is well worth the attention of every machine shop foreman.

PIPE FITTINGS.—The Barco Brass & Joint Co., 1908 catalog. This catalog describes a line of pipe fittings, specializing on flexible ball and socket joints of varying designs to meet different requirements.

FORGINGS.—A neat 23-page booklet full of drop forging suggestions has been issued by the Machinery Forging Co., Cleveland. Illustrations of numerous types of forgings are shown, together with tables of sizes and prices in some instances.

DUMP CARS.—The Arthur Koppel Co., Pittsburg, in a recently issued pamphlet gives illustrations supplemented by interesting descriptive data of the many uses to which steel dump cars may be put.

SHAFTING—Bliss & Laughlin, Inc., Harvey, Ill., have issued a pamphlet giving specifications and prices of their line of turned and cold rolled steel shafting.

BOLTS AND NUTS.—The Russell, Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y., 1908 catalog, 5 x 7 inches, 160 pages. This is a carefully indexed catalog of a complete line of bolts, nuts, turnbuckles, staples, rivets, etc. The book is complete in its lines; the products are accurately illustrated and tables of sizes with their accompanying prices are given.

VERTICAL ENGINES.—Edwin H. Ludeman & Co., 165 Broadway, New York. Two catalogs, each 20 pages, 6 x 9 inches, describing the Williams vertical compound medium speed engine built in sizes from 300 horsepower upward and the Williams "Monogram" vertical duplex compound engine ranging from 25 to 500 horsepower. These engines are built by Robert Wetherill & Co., Inc., Chester, Pa. Sectional elevations and tests are shown of the former engine, which has been in service for several years. The latter engine has been brought out recently to meet the demand for a highly economical unit particularly adapted for direct connection to generators, pumps and blowers. Its first cost slightly exceeds that of single valve high speed engines, but the catalog presents a comparative cost diagram to prove its ultimate fuel saving. Full sectional elevations are shown.

BRASS.—The Scovill Mfg. Co., Chicago. 43-page catalog, well printed and handsomely illustrated. Presents information concerning the brass products of this company, including sheets, wire, tubing, hinges, ferrules and other specialties; bronze and German silver sheets and wire, bronze rods, etc. It contains a number of very valuable tables on weights and sizes of brass and copper wire and sheets, tubing, etc.

CABLEWAYS.—The Lidgerwood Mfg. Co., New York, general catalog 1908, 9 x 12 inches, 168 pages. This catalog, recently issued, contains many illustrations and descriptions of Lidgerwood cableways in all parts of the world. Numerous original photographs are published and the application of cableways to almost every branch of engineering construction is fully set forth.

HYDRAULIC TOOLS.—R. D. Wood & Co., Philadelphia, 1908 catalog, 8 x 10 inches, 122 pages. This book details the uses of hydraulic machinery, indicates its advantage over pneumatic and geared tools, gives precautions against freezing and other valuable hints in the operation of hydraulic machinery. The catalog also illustrates and describes a full line of valves, shears, punches, presses, bulldozers, riveters, hoists, cranes, accumulators and pumps. An interesting feature of this work is an ideal boiler shop layout.